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## ORIGINAL ARTICLES.

### CARDIOGRAPHY.[1]

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Cardiography comprehends the art and science of the instrumental registry of the movements and phases of the heart's revolution. Or, the term may designate either the art of producing, or the science resulting from, such graphic representations. The instrument which writes the changes is properly termed the cardiograph, and the graphic line produced by it, the cardiogram. Cardiography is less known and practiced than sphygmography, nevertheless its history is not unworthy of attention.

The first successful auto-records of the living heart were obtained in 1860 by Chauveau and Marey in their brilliant series of experiments on the horse. These experiments have become classical and their *technique* need not be detailed here. Suffice it to state that the variations of the blood-pressure in the cavities of the heart and in the aorta, as also the impressions of the heart against the chest-wall were faithfully and simultaneously recorded during the heart's revolutions. The results were magnificent, and may be formulated as follows:

1. The line of a cardiogram ascends and remains more or less elevated in ventricular systole, while it descends and remains more or less depressed in ventricular diastole; the lowest point of the main ascent marking the beginning of systole, and the highest point of the main descent marking the beginning of diastole.

2. The two ventricles are synchronous in their action.

3. The auricular systole precedes by a short interval the ventricular systole.

4. The trace of the pulsation of the heart taken from the thoracic wall agrees exactly in time and substantially in form with the trace of changes of blood-pressure taken from the interior of the ventricle.

5. The ascent of ventricular pressure precedes the ascent of aortic pressure by a short interval, and the ascent of arterial pressure at remoter points, by longer intervals.

[1]Read in the Section of Practical Medicine, Materia Medica and Physiology at the Thirty-sixth Annual Meeting of the American Medical Association.

These precious facts having been established, the way was cleared for successful cardiographic (and cardio-sphygmographic) experiments on man. For this consumation it only remained to produce an instrument, which, applied to the chest-wall at the point of sensible cardiac impulse, would faithfully register the movements there, to secure trustworthy representations of the movements of the heart. Cardiograms from the chest-wall of man were first obtained with Marey's sphygmograph, but it was soon found that this instrument was ill adapted to the purposes of cardiography. Marey set himself about to devise an efficient cardiograph. Retaining the tambour principle and air as the medium of transmission, he constructed, and experimented with, many different forms of instrument, and in turn relinquished one after another as not sufficiently satisfactory. Finally he has settled upon one with the mechanism and working of which he expresses himself well pleased.[1] It constitutes a part of his new polygraph—an apparatus devised for the simultaneous inscription of the heart and arterial pulse.

The cardiograph consists of a receiving tambour, carrying a button or knob on its membrane, and encircled by an outer rim or case in which it is advanced or retracted by a simple device, to secure the required position and pressure in relation to the chest-wall. It communicates by a flexible tube with a second or operating tambour whose membrane is connected with a writing lever through an articulated stem attached to its center. The instrument is placed with the button of the membrane over the spot of impulse, when the movements received are transmitted by the column of air to the membrane of the second tambour, whose lever amplifies and writes them on the revolving surface of a recording cylinder. Excellent and trustworthy cardiograms are obtained with this instrument.

The author's compound sphygmograph is also well adapted as a cardiograph. It, like Marey's, utilizes the tambour principle, but differs from his, notably, in transmitting by water instead of air. It admits of fine adjustments to insure requisite and uniform sensibility. It has a manometer tube which is of signal service. It is provided with a chronograph. It admits of combination with a fellow instrument for purposes of simultaneous inscriptions. It is convenient and accurate, and with it the practice of cardiography is a very simple matter. Its cardiograms are well delineated and present similar forms

[1]La Circulation du Sang, 1881, p. 706.

with those collected by Marey's. Such are the mechanisms which have brought the science of cardiography to its present status, and which seem to fulfil every requirement for ready and truthful cardiographic observations.

### THE FORM AND INTERPRETATION OF THE CARDIOGRAM.

The typical cardiogram is no longer a strange delineation. It is recognized, in general terms, as a line (read from left to right) quickly rising to a summit, then falling sharply a short distance, then thrown into secondary waves (usually two), then suddenly falling to a point below the beginning, then rising again, first rather quickly, and then more gradually by secondary waves to the point of beginning of the next revolution. In the accompanying figures of cardiac-traces this description is verified. In No. 1, solid line, the main ascent is from A to B, the first descent from B to C, the upper secondary waves from C to E, the main descent from E to F, the second ascent, rather sudden, from F to G, and the lower secondary waves on a gradually ascending line from G to A, the basal point of next main ascent.

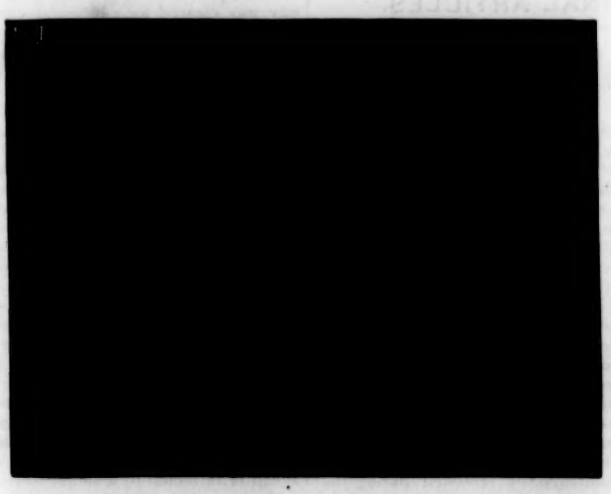

FIG. 1.—Simultaneous traces of the heart and carotid, from a healthy man, aged 28 years, with the time in fifths of seconds; enlarged to double size by photography, and marked for illustration.

FIG. 2.—Same (normal size) from a healthy young man, aged 20 years.

FIG. 3.—Same from another, of the same age.

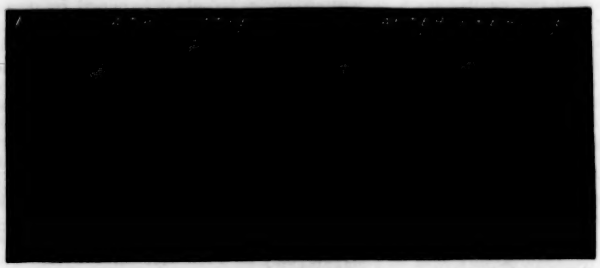

FIG. 4.—Same from a man aged 54 years; at rest, and immediately after active exercise.

This typical form, however, is often to an extent departed from, even in cardiograms of normally acting hearts. The most common variations (intrinsic) pertain to the line between the first summit and top of the main descent, and the line between the bottom of the main descent and beginning of the next main ascent. In conditions of disease there are marked variations from the typical normal form.

There are also variations (extrinsic) from the instrumental adjustment, which pertain (a) to the velocity of the recording surface, and (b) extent of permitted excursion of the lever. The cardiogram will have length according to the first, and height according to the last; but as the true relations are maintained of the different parts of the trace, these variations are not material.

Again, there are modifications from faulty applications of the instrument, and from unfavorable apposition of the heart with the chest-wall. Either of those causes may produce an inverted, or partially inverted, trace whose reading will be uncertain. Moreover, it is true that in certain persons no cardiograms can be obtained in consequence of unusual compactness or thickness of the chest-wall preventing transmission of cardiac movements. This personal incapacity is a serious drawback against the universal utilization of cardiography for clinical purposes; but happily most persons are capable of affording good cardiac traces.

The cardiogram is a precious document. It is the record of the heart's pulsations written by the heart itself. Every phase of this record answers to a corresponding phase of the cardiac cycle, and the interpretation is now well understood. The line between the bottom of the main ascent and top of the main descent answers to ventricular systole; and the line between the top of the main descent and bottom of the next main ascent answers to ventricular diastole; and the small wave, single or double, which immediately precedes the main ascent, answers to auricular systole. The main ascent represents the onset of ventricular systole; the first fall, expenditure of the onset and quick escape of blood into the artery; the upper secondary waves, action and reaction and reciprocal play of blood between ventricle and artery; the main descent, the onset of ventricular diastole; the next rise, filling of the ventricle; the subsequent more gradual rise continued but slower ventricular filling; and the lower secondary waves, if more than accounted for by auricular systole, represent oscillations of the blood between ventricle and auricle whilst their cavities are communicating and walls quiescent.

With regard to the small wave immediately preceding the main ascent, this unquestionably belongs to auricular systole, but there has been a question as to the interpretation of the twin wave immediately in front of the latter. The author believes that both pertain to auricular systole; the first answering to initial contraction, and the second to the sweep of the blood into the ventricle. Yet, while every part of the cardiogram stands for a phase of the heart's action, unfortunately there are two cardiac events which are not distinctly shown in the cardiac trace. These are closure of the auriculo-ventricular, and closure of the semilunar, valves. On listening to the sounds of the heart at the same time its tracing is being produced, it is observed that the first event occurs in the first part of systole and whilst the lever is rapidly ascending; and that the second event occurs in the first part of diastole and whilst the lever is rapidly descending. It is thus explained, that the commotion of the onsets of systole and diastole and swift vertical motions of the lever contravene the record of the valvular closures.

The mechanism of the cardiac trace, in which the operation of the factors concerned has been more minutely followed, the author has treated elsewhere.[1] Let it be stated that the factors are:

1. Changes of contraction and of relaxation of the cardiac fibres.
2. Changes of intra-cardiac blood-pressure.
3. Changes of consistence of the cardiac walls.
4. Changes of volume of the heart.
5. Reciprocal influences between the open ventricle and artery, and open auricle and ventricle.

These are the elements which in combination during the rhythmic motion of the heart operate to determine the varying line of its cardiogram. It is not difficult to follow these factors and imagine their modules, and from the latter to construct a diagram

[1] Boston Med. and Surg. Journal, September 29, 1881, p. 293.

of the heart's movements; which in reality proves to be the counterpart of the cardiac trace as written by the heart itself.

It is just, then, to regard the cardiogram as the faithful representative of the heart's pulsations; and to study the latter we have only to study the cardiac traces in which the cycles and phases are shown in their true limits and relations. In this we have a preëminent advantage, for manifestly the cardiac movements evade the touch and the eye for accurate determination. All the qualities of pulsation revealed to the senses, and expressed according to the usual nomenclature, as, strong or weak, quick or slow, frequent or rare, regular or irregular, are distinctly shown in the cardiogram; and, besides, the specific showings of this line relating to the chronometry of the cardiac cycles and events are far beyond the possibilities of the most practiced perception.

### FACTS OF CARDIOGRAPHY.

Among the facts brought to light by cardiography are:

*(1) Those relating to the duration of cardiac cycles.*—The average duration is easily determined by the usual method of counting the number of pulsations in a given time, but the duration of individual cycles is only determined by measurement of their cardiograms. The rhythm of the heart may appear to our senses perfectly regular, and yet the variation in the length of the cycles be quite considerable. When each cycle writes in succession its beginning and ending, and the distance between is measured by a simultaneously written chronogram, the duration is determined with certainty and precision, and we are enabled to reach results before unknown, and unattainable by ordinary methods of observation. By this method it is demonstrated that in pulsations which appear the most regular and equal the rhythm is continually varying within short limits. There may be a few successive cycles which measure the same, but usually the duration varies. These small variations, although distinctly measurable by the chronogram, are, as stated, wholly inappreciable to the touch, or eye, or ear. In figure 5, the top row of figures shows in decimals of a second the duration and variation of individual cycles, as carefully measured on the chronogram in fifths of seconds, below. Thus we have come to learn that the heart, however regular its action may appear, is subject to an incessant oscillation of rhythm.

FIG. 5.

Not to dwell on the causes of these rythmic variations, the fact of a definite relationship between the respiration and variations of the cardiac cycle may here be mentioned. It has been demonstrated that the cycles of the heart are shorter in inspiration and longer in expiration; the shortening running over into the first part of expiration and the lengthening running over into the first part of inspiration. See figure 6.

FIG. 6.—Respiration and heart traced simultaneously, with the time; and marked to show the pulse-rate of the individual cycles.

(2) *Facts relating to the duration of ventricular systole and diastole.* Without cardiography there are no means of determining, even approximately, the duration of the periods of contraction and relaxation of the ventricle; with cardiography these durations are determined with the greatest facility and accuracy. The cardiogram, as stated, marks the beginning and end of these phases, and determination of their duration is only a matter of measurement on a horizontal line. Concerning these points investigation has brought out the following formula of results:

A.—With pulse-rate at 75 per minute, (cycle four-fifths = .800 second), the average duration of systole is about .326 second, and of diastole about .474 second.

B.—In the small variations of cyclic rythm systole usually also varies, but its variations may be either with or against the sense of the variations of the cycles. In considerable cyclic variation systole is shorter with short, and longer with long cycles.

C.—In the small variations of cyclic rhythm diastole usually, also, varies, and in much greater degree than systole, and almost always in the same sense as the cyclic changes. In considerable cyclic change the diastolic shortening or lengthening is correspondingly large.

D.—Systole and diastole may both vary their duration without change of the cycles, in which case the shortening of one will exactly equal the lengthening of the other.

In illustration of these statements figure 5 may also be studied. The systoles were carefully measured and the diastoles computed by deducting the latter from the corresponding cycles. The figures within the divisions express, in decimals of a second, the values found. The pulse-rate of the individual cycles of the run varies between 80 and 85 per minute, and the average rate of the nine cycles is 81.5 per minute.

(3). *Facts relating to auricle.* — Although the theory, that auricular contraction occurred in the latter part of the period of ventricular relaxation, was well accepted, it remained for cardiography to produce indubitable demonstration of the fact, and definitely determine the relative position and time of this event. Graphic experiments on animals and on man go to prove that the systole of the auricle precedes the systole of the ventricle by an interval which averages about one-fifth the duration of the cardiac cycle; the proportion, however, being less in long, and greater in short cycles. In animals the auricular trace, as obtained directly from the auricle, is in form of a pronounced single wave; but in man the trace, as obtained indirectly through the ventricle, is in form of two small waves, as said before. The double wave of man occupies the same proportional interval as the single wave of animals.

These are specimens of the results of pure cardiography. In a word, by it we learn the form and chronometry of the heart's pulsations. The facts, if not extensive in range, are such as may be multiplied by every experimentation, and like those of clinical thermometry become innumerable. They commend themselves for their positiveness and precision, and as supplying a void in our knowledge of the finer physiology of the heart's movements. Besides, they claim our appreciation in that they are essential and preparatory to the richer and more practical developments of simultaneous cardio-sphygmography.

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## SYMPATHETIC OPHTHALMIA WITH OSSIFIC AND CALCAREOUS METAMORPHOSIS.[1]

BY FLAVEL B. TIFFANY, M.D.,

OF KANSAS CITY, MO.

It is with some hesitancy that I come before this assembly with a paper on sympathetic ophthalmia, a subject the literature of which is so voluminous and opinions so greatly at variance. But considering the importance of the subject, the frequency of its occurrence and its direful results, it may not be out of place for me to report some cases which have come under my observation. The cases which I shall present are complicated with some ossific or calcareous metamophoses; one having a worm, lanceolatum distoma, of the choroid.

Ever since sympathetic ophahalmia was first announced by Mackenzie, the disease has been looked upon as one of the most dangerous and formidable which the eye is heir to. Its approach is insidious, and when the flame is once kindled, it is extremely difficult to smother it before great damage is done. Plastic exudations have taken place ere the patient is aware that he has any difficulty of the eye; adhesions are formed, binding the iris to the anterior capsule of the lens and the pupilary area is filled or the pupil is occluded and blindness ensues. That sympathetic ophthalmia is a plastic inflammation of some portion of or of the entire uveal tract, is quite generally acknowledged. In considering the pathology of the disease, it will, no doubt, be agreed that it is a disease peculiar to the uveal tract, and that the ciliary body and parts in near proximity are the first to be involved. But when we revert to the etiology of the disease, I am sure that there will be a difference of opinion as to whether it is a transmitted or a reflected affection. According to my observations and data collected, I must regard the affection as a reflected disease through the medium of the ciliary nerves, notwithstanding Arlt's strong argument in favor of its being a continuation of an inflammation of the optic nerve through the optic commissure; or the assertions of others who claim to have traced the hypothetical microbe of the offending member through the optic nerve to the other eye. In support of the theory that sympathetic ophthalmia is a reflected disease and that it is through the medium of the ciliary nerves, and due to diseased filaments of these nerves, and not a progressive inflammation through the optic nerve, I give the following data:

1. Sympathetic ophthalmia is a plastic inflammation, a form of inflammation peculiar to vascular tissue not to nerve tissue.

2. It is an inflammation of the uveal tract usually

[1]Read in the Section of Ophthalmology and Otology at the Thirty-Sixth Annual Meeting of the American Medical Association.

of the ciliary body, frequently involving the iris and choroid while the retina remains intact.

3. In inflammation of nerve tissue it is the neurilemma or medullary portion rather than the axial part that is involved.

4. The optic nerve sheath does not enter the eye but passes over on to the sclera, leaving the nerve to enter the eye as a non-medullary nerve.

5. The ciliary nerves enter the eye and do not leave their medullary portion until they are lodged in the ciliary region.

6. The ciliary nerves go to supply, and are intimately connected with the uveal tract, and ciliary region, whereas the optic nerve has no immediate connection with this tract.

7. Were the optic nerve the medium of transmission or propagation of the inflammation by extension, enucleation would not be likely to arrest the inflammation.

8. Sympathetic ophthalmia occurs in eyes with completely atrophied, and even cretaceous degeneration of the optic nerve.

9. The sympathetic irritation has been arrested by division of the ciliary nerves near their entrance into the sclera, leaving the optic nerve intact.

The cases which I wish to present, are interesting and instructive, both as corroborating what has been said regarding the etiology of the disease, and in the specific phenomena of calcareous and ossific degeneration.

*Case 1.*—Charlotte K., a Swede, aged 64, was led into my eye and ear clinic on Sept. 30, 1884. With her right eye she could but count figures 16 inches away, while she was totally blind in the left. At 15 years of age, while playing on the grass one day, she accidentally discovered that she was blind in the left eye. She asked her mother if it was true with other people as it was with her, that if they covered the right eye they could not see; whereas if only the left eye was covered the sight was good? This was the first knowledge her parents or friends had of her blindness. She was taken to a physician in Sweden, who told the parents that their daughter had a gray star of the left eye. There was no remembrance of her ever having received an injury or of her having had an affection of any kind in the eye, nor had she ever had any pain or soreness there; surgical or medical treatment of course she had not had. The sight of her right eye had always been good up to a few weeks previous to her first visit to me. Up to that time she had never experienced inconvenience of any kind from this eye. At this time, Sept. 15, 1884, when milking, the cow switched her tail in the patient's face, striking her left eye with some force, occasioning considerable pain which subsided after a few hours; three or four days subsequently her right eye began to grow dim, the dimness gradually increased up to the time when I first saw her, when, as before stated, she had only a very small amount of vision.

Ophthalmoscopic examination revealed choroiditis pigmentosa, floating bodies in the vitrious, with some slight opacity of the lens. Diagnosis: Choroiditis with incipient neuclear cataract of R. E. There was a very dense leucoma of the left, which would not permit an examination of any of the internal structures. The cornea also had centres of cretaceous metamorphoses; the intra-ocular tension was considerably increased especially at the posterior portion where the eye firmly resisted any pressure. I regarded the eye as an old glaucomatous eye, and the source of the irritation to its fellow; and accordingly urged immediate enucleation, notwithstanding there was no pain or soreness, nor ever had been except for the short interval succeeding the injury from the cow's tail.

As I enucleated the eye, it was accidently dropped and fell to the floor, giving a sound like that of a stone or bone. Upon making a transverse section, the following macroscopical conditions were found: Cornea hypertrophied to several times its normal thickness, entirely leucomatous with extensive calcareous metamorphoses. The crystalline lens was quite calcified in situ; the anterior chamber obliterated and iris in juxtaposition with the cornea; the retina completely detached, and coarcted by an osseous cup, which occupied the whole fundus of the eye (with the exception of that part opposite the optic nerve) and extending in part to the ora-serrata. The opening at the optic nerve, through which passes the retina, measures a fourth of an inch in diameter, and at this part the plate or cup of bone is at least a fourth of an inch in thickness, while it gradually decreases in thickness as it approaches the ora-serrata. In Dr. Knapp's able article on "Bone Formation in the Choroid," he asserts that these ossific deposits of the eye are only found in the choroid, and that they invariably begin in the inner or capillary layer.

In making sections of different parts of the choroid, I find that this case bears him out in the assertion that the ossification begins in the capillaries, but, instead of its being near the ora-serrata or ciliary body in the case under consideration, the ossification evidently began near the entrance of the posterior ciliary nerves and arteries, where the cup is the thickest. The osseous formation seems to be wholly confined to the inner layer of the choroid, involving more particularly the radicals or capillaries.

Dr. Alfred Voorhies speaks of a bony formation of the crystalline lens (no ossific deposit elsewhere). He claims to have found in his specimen Harvasion canals, canaliculæ, and lacunæ, but he does not attempt to show how the bone was developed, and in what way the canals and canaliculæ were formed. If the lens, or even the capsule, possessed blood-vessels, we might more easily account for the phenomenon; or, in other words, we can account for bone formation in vascular tissue, where there is constantly an interchange of fluid; but even here we do not expect to find the same structure as in the physiological formation of bone; for how could we have Haversian zones or lamellæ canals, and canaliculæ, without, first, cartilaginous tissue with its cells surrounded by zones and covered by vascular perichondrium.

Turning to the microscopical examination of the case under consideration, we find that it illustrates

forcibly the hypothesis that Dr. H. Knapp makes prominent in his article, that ossification always begins in the capillaries.

Sections of this specimen show canals, lacunæ, and osteoblasts, but the Haversian zones or lamellæ do not appear. How could they without a previous cartilaginous skeleton to build upon? Another point of interest is the *time* of development of the osseous growth. From the fact that the patient was blind of this eye from the time that she was 15 years old (possibly from birth), and has now attained the age of 64, the bone may have been been many years in forming. The bone formed all around the optic nerve, crowding against it, even cleaving the retina from the choroid throughout its whole extent. Yet no sympathetic ophthalmia was produced until the bone had reached the ciliary region; a fact going so far as one case can, to prove the theory that sympathetic ophthalmia is a reflected, not a transmitted disease.

After enucleation this patient's vision was increased to $^{20}/_{20}$, and the symptoms of hyalitis passed away. I have not seen the patient for several months, and do not know the condition of the cataract

*Case 2.*—Kate B., aged 20, visited me May 21, 1881, for an affection of the right eye. The following is the history as given by herself: "When a child in school I was troubled with pain in my eyes, especially in the right. The pain was also severe through the temples and over the brow; this pain was intensified by close application to study. One day I was kept after school to learn a lesson in geography, which I had failed to get on account of this severe pain; the lesson required close looking, being a map lesson. I told the teacher that my eyes pained me so that I could not study; but she insisted on my having my lesson then and there. I went home that night with a terrible pain in my eye, which lasted for weeks. I was unable to attend school or read a word for two years, at the end of which time I attempted to resume my school work, but my eyes troubled me so that I was unable to attend regularly. I went to school, off and on, for two years longer, when I was obliged to desist from all study. In the winter that I was 16 my health was very poor, and the pain in my right eye was almost constant. My eyes were then crossed. Four years later an operation was made on my right eye for the cast. After this operation, the eye was much worse."

When Miss B. visited me, I diagnosticated secondary cataract in the right eye, with posterior synechae; and in the left, a high degree of hypermetropia. I made an iridectomy of the right, and corrected the hypermetropia of the left eye. In a few months I made keratonyxis of R. E. The eye did very well for a time, when repeated paroxysms of glaucomatous pain appeared, destroying entirely the sight. There were at this time symptoms of sympathetic ophthalmia in the left eye. Three years ago last Christmas I enucleated the right eye.

Upon cutting the globe open I found an ossific deposit in the choroid, embracing about one-fifth of this membrane, at the fundus near the macula lutea. The portion of the lens which had not been absorbed, was calcified. After removing the eye there was considerable hæmorrhage, which gave some trouble in controlling, and for which I tamponed the orbit with a sponge, leaving it in over night. The next day when I attempted to dress the orbit, I found to my surprise that sponge-grafting had taken place; so firmly did the sponge adhere to the stump, that I was obliged actually to tear it away, leaving some small bits in the wound. Ever since the removal of the eye the patient has suffered more or less pain in and about the orbit; abscesses would occasionally form in the conjunctiva of the stump, discharging into the orbit and through the nose. The periphery of the orbit has always been very tender. So great has been the hyperæsthesia, that the patient has never been able to wear an artificial eye with any comfort. The pain and tenderness of the stump and surrounding parts have always been increased during the catamenia, and for the past year these periodic paroxisms have assumed a much graver aspect than previously, the pain no longer being confined to the right side, but frequently attacking the left eye also, and culminating in severity at the occiput, or base of the brain. While the pain lasted the patient would complain of nausea, and of seeing a halo of prismatic colors when looking at the light of a lamp, great dimness of sight. In fact many of the symptoms of glaucoma were present.

Regarding these symptoms as pathognomonic of sympathetic ophthalmia, and looking for the cause in the cicatrix of the stump of the eye removed, I determined to excise the cicatrix: accordingly, Feb. 6, 1885, I resected a portion of the stump, since which time the patient has not suffered the least pain in the empty orbit, and although there have been now and then slight twinges of pain in the left eye, no paroxysm has occurred, nor has there been any dimming of sight. I think, therefore, we may conclude that the source of the irritation was located in the cicatrix of the stump, where, probably, there was entangled filaments of the ciliary nerves, upon whose liberation the symptoms of sympathetic ophthalmia immediately vanished.

Before concluding, I wish to call attention to another interesting specimen of ossific metamorphosis of the eye. In Dr. H. Knapp's article on "Bone Formation," he emphatically states that the choroid, or the uveal tract, is the only part of the eye which is susceptible to ossific metamorphosis. In this specimen, I think you will agree with me that there is at least an apparent bony formation in the sclera, embracing a rim nearly half an inch in width, in the region of the sclero-corneal junction, while the uveal tract is entirely free from the slightest ossific deposit.

In the fundus of this eye near the optic nerve we find a worm, about a half inch long, embedded in the choroid even to the sclera. I am sorry to say that I have no history of this eye, as it was not cut open at the time of enucleation, but placed in alcohol for future examination. I only know that it was diagnosed as a glaucomatous eye, and removed to check imminent sympathetic ophthalmia.

## A CASE OF MEMBRANOUS OCCLUSION OF THE POSTERIOR NARES, WITH OPERATIONS BY THE GALVANO-CAUTERY.[1]

BY W. E. CASSELBERRY, M.D.,

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It is a source of much relief and gratification to discover the fundamental cause of an obscure chain of symptoms, and when enabled to effect an immediate removal of the cause, and thus a radical cure of the disease, we experience a sense of rejoicing which repays us, abundantly, for the many disheartening cases necessarily encountered.

Mr. E., æt. about 40, native of Russian Poland, has suffered during the past thirteen years from an obstruction of the left nasal chamber. Thick, viscid, and foul muco-purulent crusts accumulated in the naris and naso-pharyngeal space, which he could neither expectorate nor evacuate by "blowing the nose," because of the impenetrability of the nostril to currents of air. Partial occlusion, also, of the right nasal chamber necessitated frequent and prolonged resource to mouth-breathing, and he has suffered in consequence from atrophic pharyngitis and laryngitis, with painful deglutition, cough, suffocative paroxysms, etc.

Deafness in the left ear and annoying tinnitus aurium have long been prominent symptoms. Most violent paroxysmal headaches, constant soreness upon the top of the head, vertigo, especially upon stooping, and various indescribable cephalic sensations of a most distressing character, have served to render life literally miserable. He has been treated for consumption, bronchitis, catarrh, neuralgia, rheumatism, and other complaints, a rhinoscopic examination never having been made. His symptoms continuing to grow in severity he consulted, at length, my friend Dr. R. O. Babcock, of this city, who kindly referred him to me.

*Status Præsens.*—Mr. E. is fairly well proportioned. His face is not really emaciated, but it has a pinched expression indicative of constant suffering. His temperature and pulse are normal. By reflected light the pharynx was seen to be covered with a foul, viscid, muco-purulent substance, continuous in descent from the naso-pharyngeal space. The expired air had imparted to it a disgustingly fetid odor. On rhinoscopic examination the naso-pharynx was found to be filled with foul and rotten crusts, which necessitated thorough removal as a prerequisite to further inspection of the parts. While using the post-nasal syringe for this purpose, I noticed that only a minute quantity of fluid passed through the left nostril, and none emerged unless the exit of the right side was held closed.

After syringing, an imperfect image only was obtainable—as the patient gagged upon the slightest provocation—sufficient, however, to discern an almost total occlusion by *something* of the left choana. Efforts to pass a probe through from the anterior aperture failed; nor would Bellocq's canula or a Eustachian catheter penetrate; all striking an obstruction far back described, by the patient, as a tender point. The finger introduced *per os* felt an impediment in the left posterior aperture.

On the following day I employed, successfully, Voltolini's uvula holder, to withdraw the soft palate from the pharyngeal wall, and obtained a much better view, and by the third day, the patient had become so tolerant to instrumental manipulation that I could get a perfect rhinoscopic image. A tense membrane covered the left choana almost completely. Its free edge was thin and sharp, and approached so near to the septum that, as seen in the drawing,

FIGURE 1.

only a very small chink remained between it and the septum narium. The left ostium tubæ could not be seen, the membrane evidently lying behind the Eustachian orifice, and so intercepting its image.

Guided by the rhinoscope, I passed a properly curved probe through the mouth, into the naso-pharynx, and through the chink between the membrane and septum. The edge of the membrane could be pushed backward by the probe, and was then seen and felt to be tense and from one to two millimetres in thickness. Efforts were again made to pass several sizes of variously curved probes and bougies through the naris from the anterior aperture into the pharynx, and finally a small Mercier urethral catheter penetrated the chink and emerged into the mouth.

The choana upon the right was partially covered by a membrane which extended about half way across the aperture. As seen in the drawing, Fig. 1, it intercepted the view of the superior turbinated body, the outer half of the middle turbinated body, and the right ostium tubæ. This membrane was much thicker and less tense than that upon the left side.

*Treatment.*—Incision and consequent removal of these membranes was, evidently, the only effective remedy, and the galvano-cautery knife electrode suggested itself as the means best adapted to the end. The patient was practiced daily for one week in the use of the rhinoscope and introduction of instruments. A flexible silver probe with a handle attached, was bent by numerous trials to exactly the proper curve to pass readily, *via* the mouth and naso-pharynx, into the chink upon the left side and to pick up the edge of the membrane. A straight knife electrode was then made to conform to the same curve; and lastly, this instrument, with all attachments, handle,

[1] Read before the Chicago Medical Society, July 20, 1885.

cord and battery, made several trial trips to the desired locality.

*First Operation*, Dec. 13th, 1884. All being in readiness the patient held his own tongue by means of Turck's tongue-depressor. With the left hand I held a small rhinoscopic mirror in position and, guided by the image, introduced the properly curved electrode, holding the handle in the right hand, the cords coming over the right shoulder from Flemming's galvano-cautery battery. With this instrument one can make and break the current either by means of a treadle or by a button in the handle, but in order to avoid all unnecessary finger or pedal movements, as tending to unsteadiness, an assistant was in readiness to turn on the current at the battery. I introduced the knife end of the electrode, one-half inch long, through the chink and pressed its edge against the membrane backwards. The patient at this moment retracted the soft palate shutting off all vision for a moment, but, thanks to previous training, when told to relax all, he let the velum fall, again bringing everything into view. At a word the current was made at the battery, the knife end became, in an instant red hot and the membrane was incised without bleeding and without sufficient pain to cause the patient to wince. In another instant the current was broken and the electrode, cooling in a few seconds, was withdrawn.

On examination I was myself somewhat astonished at the thoroughness of the work,—the size of the aperture produced. I had hardly expected to accomplish so much, but the matter is readily understood. The membrane being tense at its edge, upon incision it retracted from each side leaving an opening the size of which is represented in the accompanying drawing.

FIGURE 2.

The delight of the patient when he discovered that he could again breathe through that nostril was a pleasure to behold, and from that moment he has been completely relieved of all cephalic symptoms, including the left sided deafness.

I found the floor of the nose, the septum and the turbinated bodies, thickly incrusted with horribly fetid, cheesy masses, the accumulated, decomposed and dessicated secretions of years. These were so firmly adherent that they could be detached only by means of a probe during a period extending over several days. Their presence for so many years served to excite a bad naso-pharyngeal catarrh which, since the removal of the cause, has vastly improved under treatment; but as the disease in the pharynx, and elsewhere to a less extent, had progressed to the atrophic stage, complete alleviation of all catarrhal symptoms is scarcely to be hoped for.

On Dec. 19th, I operated a second time, passing the electrode beneath the remaining edge of the membrane incising and still further enlarging the aperture. After a third operation on Dec. 29th, the left ostium tubæ became visible in the rhinoscopic mirror, the membrane having been so far removed as to cease to cover the Eustachian orifice, and two or three more slight touches served to completely obliterate the occlusion. Upon the right side four similar operations were performed with a like satisfactory result so that now both posterior nares are widely patent and in an approximately natural condition.

FIGURE 3.

It is probable that atresia of the posterior nares is by no means so rare as the few reported cases and the omission of all mention in many treatises might lead us to suppose. I have seen the reports of but two cases occurring in the adult: one by Voltolini,[1] in which prolonged suffering had been occasioned by a total occlusion of the right choana, the condition being revealed finally upon rhinoscopic inspection, and its removal accomplished by the galvano-cautery; the other by Pomeroy,[2] of complete osseous obstruction of the right nostril occasioned by a process of bone extending from the posterior extremity of the inferior turbinated body. The operation in this instance was by means of the burr-drill and surgical engine, the bony plate being thus perforated.

Records of cases occurring in infancy are more numerous, doubtless because the active interference with the nursing function necessitates one of two things,—either a correct diagnosis and an operation, or death and an opportunity for post-mortem examination. Ronaldson[3] reports the case of a female child who died very soon after birth from inability to breathe through the nostrils. The posterior nares were found to be occluded by a thick membrane. Luschka's[4] case occurred in a female child, and the openings were closed by bone. Opportunity for an autopsy offered also in this instance. The bony framework was formed on both sides from the horizontal plate of the palate bone, extended upwards to the inferior face of the sphenoid bone and to the

[1]Die Anwendung der Galvano-Caustik. Wien, 1870, pp. 240, 262.
[2]New York Medical Record, 1881, XIX, 652; Diseases of the Nose, by Clinton Wagner, p. 252.
[3]Edinburgh Med. Jour., 1880. XXVI, 1035.
[4]Schlundkopf der Menschen, 1868, S. 27; Mackenzie: Diseases of the Throat and Nose, Vol. II, p. 467; Cohen: Diseases of the Throat and Nasal Passages, p. 386.

median line joining its fellow of the opposite side. Betts[1] reports a similar case in a fœtus of seven months.

Cohen[2] recognized the lesion in a young infant troubled with difficulty in suckling, dyspnœa and frequent suffocative paroxysms. He operated and saved the life of the child. Emmert[3] operated successfully on a boy seven years old, who had bony occlusion of both choana. He had been nourished only with great difficulty when an infant, and he was subject to frequent suffocative attacks. Wilkinson,[4] also, reports a similar case in a patient six years of age.

In all of these cases the malformation was congenital, and it is most likely that such is true in the case of Mr. E. He has never suffered from any violent acute or chronic inflammation or ulceration sufficient to develop adhesions, even if the lesion were of the nature of an adhesion, which it is not. Moreover, it is difficult to conceive of the complete development of such membranes *extra utero*.

But he experienced no inconvenience until thirteen years ago. Upon this point he has been carefully interrogated, and we must seek an explanation. Is it not probable that in earlier years the membrane upon the left was relaxed and less complete, similar in condition to that which now existed upon the right, there remaining upon both sides apertures sufficiently large for all practical purposes? and that later it underwent contraction, became thinner, tense, and sufficiently extended to cover the choana? The left membranous fold was composed chiefly of a duplicature of mucous membrane, with possibly some connective tissue and muscular fibres interlying in the thicker portion towards the outer border. The right structure contained considerable muscular tissue. As no osseous malformation existed, it is probable that the membranes sprang simply from the soft parts. Upon the left the attachments were, apparently, to the mucous lining of the superior posterior edge of the vomer, the inferior surface of the body of the sphenoid bone, the left pharyngeal wall behind the Eustachian orifice, and the superior posterior surface of the velum palati. Upon the right they included only the inferior surface of the body of the sphenoid and the right pharyngeal wall behind the Eustachian orifice.

The means employed to effect the removal of the membranes deserve some consideration. It is but one of many cases of nasal and pharyngeal surgery wherein I have found the galvano-cautery of the utmost utility. I do not say that it was impossible to have made the incision with a properly constructed bistoury, but to have done so from behind would have been a difficult if not dangerous procedure, and if attempted from in front one must have worked in the dark. The galvano-cautery electrode being a dull instrument, could be introduced, withdrawn and reintroduced, without danger to the patient from gagging, until the point was brought into exactly the desired position, when in an instant it could be converted into a cutting instrument, and in another second reconverted into its harmless self to be withdrawn. Little or no bleeding results, and the pain is infinitely less than would be supposed.

The battery which I employ is manufactured by Otto Flemming, of Philadelphia, from suggestions furnished by Carl Seiler. It has many advantages over any other that I have seen.

70 Monroe St., Chicago, July, 1885.

[1] Arch. de Toxicologie, September, 1876; Cohen: Diseases of the Throat and Nasal Passages, p. 385.

[2] Loc. cit., p. 385.

[3] Lehrbuch der Chirurgie, Stuttgart, 1853, Bd II S. 355; Cohen: Loc. Cit., p. 385.

[4] Clinton Wagner: Diseases of the Nose, p. 223.

## NEURO-RETINITIS ALBUMINURICA.[1]

BY W. CHEATHAM, M.D.,

LECTURER ON DISEASES OF THE EYE, EAR AND THROAT, IN THE UNIVERSITY OF LOUISVILLE.

Having seen ten cases of this affection in my ophthalmic practice, I have thought it well to report them to this Society, with illustrations, by means of the magic lantern, of the appearance of the fundus oculi, with its changes, as distinguished from the normal eye. The ophthalmoscope in the diagnosis of diseases of the kidney I regard as an extremely important instrument. In five of the ten cases I have seen, no disease of the kidneys had been suspected by the family physicians, although they were all thoroughly well-informed practitioners.

*Case 1.*—While examining school children in New York to see the effect of study on their eyes, one of them, whose vision was $^{20}/_{20}$ or perfect, had the most marked neuro-retinitis albuminurica I ever saw. His physician, one of the leading men in New York, had never suspected kidney trouble; on examining the scholars two years later, he had in the interval died of disease of the kidneys.

*Case 2.*—Some years ago, during the life of Dr. Foree, of Louisville, he called me in to see a married woman, at about the seventh month of her pregnancy. Rapid loss of vision was her only symptom. The ophthalmoscope showed most marked neuro-retinal changes indicative of disease of the kidneys. Convulsions and death soon followed.

*Case 3.*—Mrs. R., a primapera, in her eighth month of pregnancy, lost the vision of both eyes rather suddenly; there was not even perception of light when I saw her. Early in her ninth month of pregnancy she gave birth to quite a large child. The ophthalmoscope revealed neuro-retinal changes, such as are seen in affections of the kidney. Vision in one eye commenced to improve rapidly after her confinement, and continued to do so until it was perfect. Vision of the other eye remained zero, the nerve and retina becoming atrophied.

*Case 4.*—Symptoms and results as in case 2.

*Case 5.*—Miss B., æt. 14, had noticed for some weeks that the sight of her left eye was failing. Dr. B., her physician, referred her to me. Her vision in left eye was zero. Vision of right eye $= {}^{20}/_{20}$. Fundus perfect. Fundus of left was a perfect picture of neuro-retinitis albuminurica. She had no œdema of extremities or face; no headache; no nausea; no pain

[1] Read before the Kentucky State Medical Society, June 25, 1885.

in the small of the back. Pulse 121 and full; respiration 20. She suffered from dyspnœa on going up stairs rapidly. I referred her back to Dr. B. for further examination. He found both albumen and casts in urine. Dr. B. put her on treatment, milk diet, etc. In five weeks the fundus had improved wonderfully, and vision increased to $^{20}/_{40}$, or half of perfect. Miss B. is a very well-developed girl, and had had no sickness recently.

In all of these cases the first symptom was the loss of vision, with no other symptom that would have attracted the attention of the physician. Many cases have been reported in which the eye symptoms preceded for some weeks the albumen and casts. Of course in these cases the ophthalmoscope is invaluable. Such cases would indicate that the disease is improperly named. They appear also to support Sir William Gull's theory, that Bright's disease originates as a disease of the arterioles, not only of the kidneys, but of the whole circulatory system. There is a case on record in which the left eye alone, of a patient 43 years old, was affected with all the subjective and objective symptoms of parenchymatous nephritis. At the autopsy, the right kidney was absent, its place being occupied by a hypertrophied lobe of the liver; there was nothing to indicate that there had ever been a right kidney except the presence of a supra-renal capsule. The left kidney (remember it was the left eye that was diseased) was in its normal position; was considerably hypertrophied, and had the characteristics of the large white kidney of parenchymatous nephritis. Cases of unilateral retinitis albumenurica are not very common. Case 5 is the first I ever saw. The right eye of this patient is, and has been all along, perfect. Schweigger says: "It always affects both eyes, although not always in the same degree." The changes observed in retinitis albumenurica are considered by Liebreich as so constant in this form of inflammation, that Bright's disease may be diagnosticated with certainty by the ophthalmoscope.

Sometimes in what is known as descending neuritis, the symptoms very closely resemble those of nephritic retinitis. What are the changes seen in nephritic retinitis? Besides the usual symptoms of neuro-retinitis, such as hyperæmia of nerve and retina, we find grouped around the macula lutea, white spots arranged in a stellate form, and looking very much as if some one had splattered white paint on the surface with a brush; this is in the earlier stages. Later the spots unite in a large, white glistening spot, surrounding the optic nerve, often not extending entirely to it, and reaching as far as the equator. Dipping in and out of this white substance, can be seen the blood-vessels, which have here and there broken down, resulting in hæmorrhages into theretina.

The three symptoms most characteristic of nephritic retinitis are: the bright stellate spots around the macula, the white mound surrounding the nerve, and the spots of hæmorrhage. The choroid and vitreous are often involved. Vision varies greatly. One of the worse cases I ever saw (Case I) reported, had perfect vision. Vision is very rarely reduced to zero. Schweigger says: "This form of retinitis may be developed in all cases in which albumenuria has existed for some time: This is most frequently the case in chronic Bright's disease; still the existence of retinal disease has also been demonstrated in connection with croupous nephritis, with amyloid degeneration of the kidneys, and in the passive hyperæmia of the kidneys in pregnancy."

Retinal disease occurs in about seven per cent. of all cases of Bright's disease. Occurring most frequently in the most insidious form of Bright's disease (the cirrhotic), it makes the ophthalmoscopic examination, therefore, the more important.

Let us for a moment glance at the pathology of the changes observed in retinitis Brightii. The hæmorrhages are the result of fatty degeneration of the coats of the vessels. The striated appearance of the infiltration into the retina and optic nerve is the result of the formation of the connective tissue that support the nerve fibers. The large, white surface surrounding the optic nerve, and the stellate spots around the macula, depend upon fatty degeneration of the cellular and connective tissue elements of the retina, more especially of the external granular layer, with exudation into the retina. The stellate appearance at the macula, is due to the peculiar anatomical arrangement of the radial connective tissue fibres at the yellow spot. The optic nerve fibres also often undergo sclerosis, and are seen in groups of small glistening spots, which are of great importance, especially as to prognosis: They closely resemble the spots of connective tissue fatty degeneration, but are differently located, being more superficial, or in front of the blood vessels, the latter being in the external granular layer, or back of the blood vessels. Often changes occur in the nerve elements of the internal layers. The cheroidal changes observed are round masses of sclerosed substance, corresponding to the degenerated portions of the retina. (Virchow). A peculiar embolism of the fine ciliary arteries has been noticed. Proliferation of the connective tissue of the adventitial coat of the retinal vessels often occurs, as seen by bright stripes accompanying the vessels.

The connecting link between the disease of the kidney and that of the retina has not been satisfactorily demonstrated. Some have supposed it to be due to impairment of nutrition, others to the urea, and others again to the albumen. There are many cases on record that upset all these theories.

The best prognosis is afforded in these cases, following the exanthemeta, typhoid fever and the advanced stages of pregnancy. No special treatment to the eye is indicated beyond rest and avoidance of bright lights.

## CONCUSSION OF THE BRAIN, FOLLOWED BY FATAL MENINGITIS.

BY H. MOULTON, M.D.,

OF STUART, IOWA.

On the afternoon of June 13, two boys, aged each about fifteen years, were fighting each other in rather close quarters, when one drew from his pocket a heavy knife, closed, and with a short, quick, upward

stroke, he inflicted in the left temporal region of the other a wound, from which blood poured freely. The bystanders, thinking the blow too light to have produced a serious injury, referred the hæmorrhage to the nose. When I reached the spot, a few minutes later, blood still flowed, encouraged by the injudicious local use of water.

Hæmorrhage being checked by pressure, the boy fainted. Soon reviving, he was brought to my office, where the wound was dressed. The sharp corner of the knife handle had made, not a deep cut, in the mass of temporal muscle, about one inch above the mid point of a line drawn from the external canthus of the eye to the external auditory meatus. There was no sign of fracture, nor symptom of concussion or compression; and there was no paralysis. The pupils of the eyes were slightly dilated, otherwise normal. The boy did not lose consciousness, nor fall or even stagger after the blow. He was pale and weak from the loss of blood, complained of slight frontal headache, and vomited once before leaving the office. At 6 P.M., one hour after the accident, he walked with some assistance to a carriage, and was taken home. At this time his temperature was normal, and pulse weak and moderately accelerated. During the evening he vomited, had a chill, lasting a half an hour or so, became feverish, and passed a restless night, with some delirium.

On seeing him next day, at 9:30 A.M., the temperature in the axilla was 104° F., respiration 28, and the pulse not very vigorous at 120 per minute. The head ached, the skin was dry, the eyes normal in appearance, and the special senses not perverted. The patient was restless in bed, but complied intelligently with all my requests and made known all his wants. Owing to the recent free bleeding, depletory measures were not adopted, but cold to the head and sponging of the body were ordered, and a single 5 gr. dose of quinine administered.

1:30 P.M.—Temp. 104° F.; resp. 30; pulse 120. Patient was more delirious, and had a mild general convulsion.

4 P.M.—Temp. 104.2°; resp. 32; pulse 130. Conjunctivæ were now congested, and the pupils of the eyes contracted, but sensitive to light. Delirium continued, and there had been occasional spasm of some of the muscles of the face and forearm. Large doses of bromide of potassium had been given, and these symptoms soon subsided. Six grains of calomel were administered at this time.

6:30 P.M.—Temp. 105° F.; pulse 130; resp. rapid. Patient was put into the wet pack, and at 8 o'clock had a temperature of 103.5° F. He was now rapidly becoming unconscious, and soon was in a state of complete stupor.

During the night, under the use of cold and the ice cap, the temperature ranged from 103° to 104° F. The pulse became more feeble, and respiration rapid and shallow. There was some tonic contraction of the flexors of the forearm. The fæces and urine were passed involuntarily into the bed.

June 15, 7 A.M.—Temp. 104.5° F.; resp. 40; pulse 138. Hands and feet cold, skin moist, and the pupils of the eyes irresponsive to light.

10 A.M.—Cyanosis developed, with the pulse imperceptible at the wrist.

At 12 M., 43 hours after the receipt of the injury, death took place from apnœa.

The plan of treatment followed was, to reduce temperature by sponging the arms, neck and trunk, and by the wet pack; to reduce temperature and lessen local inflammation by cold to the head, using first simple cold water, afterwards an ice cap; to lessen intra-crannial congestion and quiet nervous excitement by the use of large doses of bromide of potassium; and to strengthen the heart by the administration of digitalis begun early. Consultation was had during the progress of the case, with Dr. J. H. Kersey.

At the autopsy, an account of a former unfortunate circumstance occurring in the practice of another, we were enjoined not to remove the calvarium and limited to an examination at the seat of injury. The wound was laid open and found to penetrate about half way to the skull, through the muscles and fascia. After dissecting up a flap from before backwards, the skull presented no mark of violence. The trephine, applied over the anterior inferior angle of the parietal bone, exposed the dura mater and the branch of the middle meningeal artery uninjured. There was no extravasation between the dura and the bone. A finger passed in at the opening, and swept around as far as it could reach, detected no sign of fracture of the internal table of the skull. The dura was but slightly congested. Underneath it were a number of small blood clots which were removed. Others were brought into sight by pressing aside the brain substance, but no large ones appeared. The pia mater and superficial brain substance were intensely red and congested and tumid.

In the light of this limited examination, the conclusion was that the vessels of the pia mater were ruptured by, and a general meningitis followed the concussion, and that this result was favored by great intra-cranial congestion, due to excitement and the heat of the day. There may have been other injury to the brain which we could not see. Mr. Holmes would place this among "cases not classifiable," in which the usual symptoms of concussion are absent, and hæmorrhage is not sufficient to produce compression, but in which a fatal injury is done, and "some laceration of the brain or extravasation into the membranes appears to have been always found."

Stuart, Iowa, July 8th, 1885.

## MEDICAL PROGRESS.

### ANATOMY AND PHYSIOLOGY.

THE ELECTRICAL EXCITABILITY OF THE BRAIN.—This is a subject on which M. VULPIAN made a report to the Académie des Sciences, on March 23. The doctrine of the cortical motor localisations depends on two kinds of experimental proof; one being the effects of destruction of cortical regions, the other the motor effects of electrisation of these regions. The latter, the only one which Vulpian

has examined experimentally, are of value only when the motor effects in question are manifested in entirely different ways, according as the electrisation is made on the cortical gray substance alone or in the subjacent white substance. This difference in the experimental results is admitted by those who believe in the cortical excitability of the brain. They hold that the cortical layer, in the motor regions, is more excitable than the underlying fasciæ, for a faradic current which is sufficient to cause movements when it acts on the cortical region, the motor centre of the posterior limbs for example, is not capable of causing this same motor reaction when this region of the cortical gray substance is excised and the current is applied to the underlying white substance. Without doubt, says Vulpian; but the operation made to disclose the white fibres diminishes their excitability by the amount of traumatism and hæmorrhage which it causes. To avoid this he excites the white substance by means of a copper wire covered with gutta percha except at its very point; by inserting this through the gray substance, and exciting the white fibres while they are intact, he shows that they are much more easily excited than the cortical layer.

Another difference consists in the fact that energetic and prolonged electrical irritation of the excitable points of the cerebral cortex causes epileptiform attacks, which never occur when these excitations are made on the corresponding white fibres. In such an experiment as the preceding Vulpian has always, by irritating the white fibres, caused a violent and prolonged epileptiform attack, and this even with a current more feeble than that necessary to cause the same reactions when applied to the cortical gray substance. Vulpian therefore thinks that he is authorized in saying that the experimental arguments, by the aid of which it has been attempted to prove the motor excitability of the cortical gray substance of the cerebrum, in certain determined points, are deprived of all value, and do not support the hypothesis of cerebral functional localisations. It should be said that the nerve fibres which convey cerebral motor incitations to this or that point may escape from the cerebral cortex without the necessity that this point should be a centre of action of these fibres.—*Revue des Sciences Médicales*, July, 1885.

## MATERIA MEDICA AND THERAPEUTICS.

Parthenine—A New Remedy.—Dr. Jose Ramirez Tovar gives, in *La Cronica Medico-Quirurgica*, of Havana, the results of his experiments with parthenine, an alkaloid derived from parthenium histerophorus. One of the first cases was a strong and vigorous woman of 34 years, who suffered from an insupportable facial neuralgia, which became worse at a certain hour every day. One gramme of parthenine was ordered, divided into ten papers, one to be taken every hour. She began to feel relief after taking three of the papers, and the next day passed without experiencing the usual exacerbation. Small doses were recommended afterwards to sustain the action of the first doses. She disregarded the advice, and as a result, she returned on the fifth day again complaining of the neuralgia, but this time not so severe as before. A few more doses of the parthenine cured the affliction, for she had no attack during the succeeding five months. Two cases of intermittent fever were also successfully treated with parthenine. A little child who had suffered for seventeen days irregularly from fever, drowsiness and anorexia, and who had derived no benefit from quinine, showed marked improvement in twenty-four hours after using parthenine, and in three days the temperature was normal. The results in all of Dr. Tovar's cases have been so striking that he feels confident that parthenine, if it come into general use, will not disappoint the hopes that have been built upon it.—*Therapeutic Gazette*, May, 1885.

## MEDICINE.

Syphilitic Gummata of the Larynx.—Syphilitic gummata of the larynx are not so rare as generally supposed; they manifest themselves singly or in a multiple infiltrated form. The epiglottis, the arytenoepiglottic fold, the arytenoid cartilages, and the inferior vocal cords constitute their seat of predilection. Tobacco, alcoholic drinks, speaking, and singing are the principal causes which determine the localization of gummata upon the phonating organs. These lesions occur with equal frequency in both sexes.

Gummata are either superficial (gummous laryngitis, properly so-called) or deep (chondritis, perichondritis). We divide gumma into four stages: of formation, of softening, of ulceration, and finally of reparation. Functional symptoms, and especially signs furnished by the laryngoscope, characterize the the disease during these four periods.

The first stage is characterized by hoarseness, by slight pains, and by a redness and small indurations which are revealed by the laryngoscope. The second stage is characterized by the same signs, and additionally by an engorgement of the cervico-maxillary glands and the development of gummata exhibited by the laryngoscope. The third stage is characterized by a puffiness of the region of the neck, by pain, increased on pressure and by deglutition, by hoarseness, raucity of the voice, and aphonia. The laryngoscope shows an ulceration of the larynx of variable extent; its edges are perpendicular, with a peripheric areola and œdema of the aryteno-epiglottidean region; the ulcerated base is yellowish and covered with a thick, grayish matter.

Finally, the fourth stage is characterized by cicatrices and all the functional signs which accompany them. The diagnosis is quite difficult during the ulcerative stage of the gumma, because the ulceration may be confounded with all other ulcerations of the larynx. Still the antecedents of the patient, the ganglionic engorgement, the localization of the lesion and of the neighboring œdema, the laryngoscopic examination and, if necessary, specific treatment, will elucidate the diagnosis.

Syphilitic gummata are less serious during the first two stages, and by appropriate treatment their resorption may be effected without any unfortunate

consequence. Ulcerating gummata are, on the contrary, very grave, not only on account of the immediate functional troubles which they provoke (œdema), but also from the stricture which they may leave as a result.

The treatment differs in no respect from the ordinary treatment of gummata in general. The results obtained by the administration of the syrup of Gibert will be much more satisfactory when this medicament is promptly given. The reparative process may be hastened by cauterizations. The œdema may be combated by cauterizations with chromic acid in solution (25 to 50 per cent) and by scarifications.

If these means fail, it may be necessary to have recourse to tracheotomy, which, done promptly, gives good results. The strictures may be combated by dilatation or by incision (Isambert) and if necessary, tracheotomy.—DR. GEORGE C. LATOUTHIS, *Th. de Paris*, 1884., *Journ. of Cutan. and Vener. Diseases*, July, 1885.

THE TREATMENT OF EPILEPSY.—DR. CHARLES K. MILLS says, in a paper on this subject: The way to treat epilepsy medically is to simply have a plan of treatment, and carry it out over a series of months or years. I would, for instance, first put a patient upon a single bromide, say ten or fifteen grains three times a day, to be increased until a decrease in the number and severity of the paroxysms was produced. I would keep him upon this perhaps for a month, and then use the mixed bromides, or some combination of bromides with other drugs, preferably the bromides, arsenic and conium prescription, watching the condition of the patient, and, if necessary, putting him on cod-liver oil, quinine and iron. With reference to nitrates, bromates, etc., there is probably some chemical or chemico-physiological reason for their inefficiency. The *ites* and *ates* would probably *never* give as good results as the *ides*. I further agree with Dr. Pepper (*Medical and Surgical Reporter*, January 12, 1884) that close attention should be paid to every point in the daily life of an epileptic—to diet, regimen, rest, and hygiene; but I do not with my present experience, believe that a genuine case of thoroughly-developed epilepsy can be cured, or even greatly benefited without drugs.

Among the surgical and external means of treatment which I have successfully used are excision of cicatrix, removal of neuroma, actual cautery, and blistering to the neck or head. I do not use counter-irritation to the scalp, but am a strong believer in the actual cautery, used after Brown-Séquard's method, to the nape of the neck.—*Therapeutic Gazette*, Feb., 1885.

ALUM IN PURULENT OPHTHALMIA.—MR. JOHN TWEEDY, speaking of the recommendation of alum solutions to be used on the appearance of any discharge from the eyelids from young infants, says: Though alum is one of the commonest remedies for conjunctivitis, its use is, in my opinion, not unattended with danger, whenever there is any chance of the cornea being abraded, eroded, or ulcerated. In conjunctivitis, and especially in purulent conjunctivitis, one or other of these lesions is seldom absent. The danger is that the solution of alum, gaining access to the corneal cement, will dissolve it, and thereby facilitate perforation of the cornea. Other medicaments, equally efficient as alum, are free from this fault—viz., chloride of zinc, perchloride of mercury, boracic acid, etc.— *Brit. Med. Jour.*, July 4, 1885.

## SURGERY.

TREATMENT OF DIABETES INSIPIDUS.—Of the various drugs which are held to exert a curative influence upon diabetes insipidus, ergot has been successfully employed by various practitioners, such as Da Costa, Macaulay, Williams, and Lacy (*Schmidt's Jahrbücher*, March 10, 1885). Da Costa noted a very decided improvement under its use in five cases, and attributes this effect to capillary contraction in either the kidneys or nervous centres. Given in a dose of one to two drachms of the fluid extract three times daily, the drug causes rarely any inconvenience. Valerianate of zinc and the tincture of valerian seem likewise to induce a favorable termination of this affection, if persisted in for a sufficient length of time. Such is the testimony of Lunin, Prior, and Cole, who used these drugs in a number of instances. Kennedy prefers the dilute nitric acid (f 3 j to f 3 v pro die in water), though admitting that this drug is apt to cause unpleasant after-effects, which are occasionally of sufficient gravity to forbid its continuation. Althaus and Clubbe found protracted faradization of the renal zone or galvanization of the medulla oblongata to also give satisfactory results.

## OBSTETRICS AND GYNÆCOLOGY.

OPERATIVE TREATMENT IN PRURITUS VULVÆ.—OTTO KÜSTNER (*Centralbl. f. Gynäk.*, March 14, 1885) gives four cases in which he has obtained a cure by excising the parts which are the seat of the pruritus. According to him, in the majority of the cases of pruritus, there is a primitive neurosis; but in many cases it consists of an abnormal irritation, which is secondarily exhibited by the abnormal irritability of the vulvar mucous membrane. The ordinary causes of this abnormal irritability are particularly, the products of the catarrhal secretions of the uterus and vagina, as this fluid, by constantly bathing the vulva, produces the first symptoms. If called early, the pruritus can be relieved by relieving the uterine or vaginal catarrh. But if the catarrh and its resulting pruritus have become inveterate, the pathological irritability of the vulva reaches a point which, even after the cure of the catarrh, through the physiological irritation, the rubbing of the parts against each other, suffice to keep up an insupportable itching. This natural irritability is increased secondarily by the modifications undergone by the vulvar mucous membrane, by the development of sudamina, of mucous sclerosis, excoriations, eczema, herpes, furuncles, etc. It is in these cases that the operation is indicated. It consists in excising the affected parts, and uniting the lips of the wound by sutures.—*Archives de Tocologie*, June, 1885.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, AUGUST 8, 1885.

## WHAT SHOULD BE DONE.

A Special Meeting of the Committee of Arrangements for the Organization of the International Medical Congress, of 1887, having been called for September 3, it becomes the duty, not only of the members of the Committee, but of all who regard the interests of the profession and the success of the Congress as superior to mere professional pride and prejudices, to aid in securing such action at that meeting as will be satisfactory to all fair minded and honorable members of the profession both at home and abroad. This should be done, not with the idea of compromising with, or conciliating some dissatisfied parties, but simply as work needed to render more complete such parts of the rules as were left unsatisfactory at the previous meeting of the Committee, and to fill such vacancies in the offices of the Congress and of the Sections as have been made necessary by the declination of individuals to serve.

The only two items connected with the rules adopted for the organization and government of the Congress, that require further consideration, are those relating to the membership of the Congress, and an Executive Committee of the same, to perform the duties enjoined in *Rule 6* of the old programme. The membership of the Congress was provided for in *Rule 1* of the original programme, and as adopted and published by the Committee as first organized is as follows:

"RULE 1. The Congress shall be composed of members of the regular medical profession, and of such persons as may be specially designated by the Executive Committee, who shall have inscribed their names on the register of the Congress, and shall have taken out their tickets of admission. As regards foreign members, the above conditions are the only ones which it seems, at present, expedient to impose.

"The American Members of the Congress shall be appointed by the American Medical Association, by regularly organized State and local Medical Societies, and also by such general organizations relating to special departments and purposes, as the American Academy of Medicine, the American Surgical Association, the American Gynecological, Ophthalmological, Otological, Laryngological, Neurological, and Dermatological Societies, and the American Public Health Association; each of the foregoing societies being entitled to appoint one delegate for every ten of their members. The members of all special and subordinate Committees, appointed by the General Committee, shall also be entitled to membership in the Congress."

The only legitimate object to be accomplished by altering this rule, was to guard against the admission of delegates from such State and local Medical Societies as had by direct and persistent action repudiated the National Code of Ethics, and arrayed themselves in opposition to the National and State Medical Societies throughout the country. It is well known that this had been done *only* by the old Medical Society of the State of New York and a few of the County Societies of the same State. Consequently the object sought could have been attained fully by inserting a few words in the second and third lines of the second paragraph of the *Rule* as quoted above; making the three first lines read thus: "The American members of the Congress shall be appointed by the American Medical Association, by *such* regularly organized State and local Medical Societies *as are in affiliation with it*, and also by such general organizations," etc., leaving the remainder of the rule just as before.

There was no necessity for going further and dropping out of the rule all the National Organizations for the cultivation of special departments in medicine, for none of those named in the *Rule* had ever taken any action repudiating the Code of Ethics or any part of it, so far as our knowledge extends. And if the American Membership of the Congress is to be a representative body, consisting of delegates fully representing all legitimate interests of the profession throughout the country, there can be no more liberal and just basis for such representation than that provided for in the original rule, with the added limitation in regard to State and local Medical Societies, just suggested.

After the most mature deliberation we prefer the revision of the rule here suggested, to that proposed

by the Council of the New York State Medical Association, at a meeting in Utica, July 7, 1885, which is as follows:

"That the American Membership of the Congress be constituted of delegates, who shall be entitled to participate in the business and scientific proceedings, and of members who shall be entitled to participate only in the scientific proceedings of the Congress; that the delegates may be appointed by the American Medical Association and by State and local organizations in affiliation therewith, in the proportion of one delegate for every ten or fraction of ten members of the organizations thus represented; that members of the regular medical profession of the United States may become members of the Congress by registering as such, and taking out tickets of admission."

The objections to this plan are: 1st. That two classes of members in the same body, with unequal privileges, is not only distasteful to many, but a positive inconvenience in conducting the proceedings in such a manner as to keep up a distinction between the business and scientific matters to be acted upon from day to day. 2d. That opening the doors to all members of the regular medical profession of the United States, practically converts the American part of the Congress into a mass meeting of that part of the profession living within a radius of one or two hundred miles of the place of meeting, much to the disadvantage of those living at greater distances.

We call attention to the foregoing propositions for revising the rule regulating the membership of the Congress, that they may be fairly considered before the next meeting of the Committee, and acted upon as their merits indicate, without the slightest reference to the opinions or wishes of those who have manifestly entered into a concerted movement for the express purpose of factiously obstructing the proper work of the Committee. The only other item connected with the *Rules*, requiring attention, is the addition of a provision constituting the President of the Congress, the Secretary-General, the Treasurer, and the Chairmen of the Sections, an Executive Committee of the Congress, to take charge of its business affairs and the publication of its transactions. This done, and the rule in regard to membership properly adjusted, the vacancies occasioned by the premature declination of those who had deliberately undertaken to obstruct the work of organization, should be, at once, filled with good and true men, who will lose no time in completing all the details for as important and successful a Congress as has ever been held in any of the countries of Europe.

## THE GAME OF BLUFF AND ITS OBJECT.

Evidences that the whole movement of premature opposition to the action of the Committee of Arrangements for Organizing the International Congress, taken at the recent meeting in Chicago, was deliberately planned by less than a dozen individuals even before the Committee met, are accumulating from day to day. We are already in possession of enough to obtain a verdict of guilty from any intelligent jury. The plan was to follow the adjournment of the Committee, so speedily that no candid or full statement of its doings could reach the profession, by an apparently simultaneous and general denunciation of the Committee and the American Medical Association in the *Medical News*, the *Record*, and the *New York Journal*, being careful to avoid specifying any particulars, accompanied by concerted meetings of as many leading men of well known reputation as could be induced by representations essentially untrue, to join in the movement in three or four chief cities. It was expected that these movements, thus suddenly developed, would prove contagious, and would induce so general a declination to serve, under what they choose to call the new organization, throughout the whole country, as to frighten the members of the Committee, or a part of them at least, so sorely, as to cause their resignation.

To ensure a more certain and speedy spread of the opposition and increase the number of declinations, letters were speedily if not simultaneously dispatched to the leading appointees and parties interested, in every part of the country, announcing the meeting and the withdrawal of the twenty-eight in Philadelphia, and the fact that similar results would certainly follow in New York, Boston, Baltimore and Washington. These letters and the editorials in the journals just named, were careful to represent each of these little gatherings as a "meeting of *the profession* of Philadelphia," etc., and to give the confident assurance that the work of the Committee was already condemned by a large majority of the profession of the United States. Without positively asserting it, the impression was made that the Committee of Arrangements had put Dr. Cole in the place of Dr. Flint and Dr. Shoemaker in the place of Dr. Billings as officers of the Congress, instead of having simply made them Chairman and Secretary of the Committee itself.

Such is a brief outline of the scheme, simply a neatly planned bit of ancient Chinese warfare, in which a sudden and tremendous noise was to so frighten the enemy as to make an easy victory certain. The first vigorous blow upon the *Gong* in

Philadelphia was to echo first in Boston, Baltimore and Washington, and then reverberate throughout the Union, until the trembling occasioned thereby should reach even to the opposite shore of the Atlantic.

And what was the real object to be gained by all this sound and fury founded on nothing? Was it the real intention of the authors of the scheme to permanently abandon the Congress? "Certainly not," said one of their medical friends in Philadelphia, when in familiar conversation with his companion. "They only signed that protest in order to make two or three *scalawags* who are trying to run the Congress step down and out; and they will do it." "They'll come in again all right. They only did this to get rid of those *scalawags*." It is an old saying, that "murder will out;" and so will conspiracies, when their authors make letter writing a part of the machinery used in their execution. Unfortunately for the authors of the present scheme, the *Gong* chosen was one whose sound had already become familiar to the ears of the entire membership of our National and State medical organizations, and consequently it only succeeded in frightening a few editors of medical journals, and disturbing the sleep of some of our more nervous friends. In the meantime the work of organizing the Congress is progressing under the leadership of Austin Flint, Sr., for President, supported by Lewis A. Sayre and Henry F. Campbell of the original committee, and cordially sustained by three-fourths of the membership of the National and State Medical Societies of the whole country. And if the *eminent decliners* are to "come in again all right," they had better be moving in that direction soon, for another forty days will not pass before the Gong they so hastily aided to put in motion will be returning as a resistless *boomerang*, from the pathway of which they may find it difficult to escape unharmed.

### DISEASE FROM BAD MEAT.

In another column we give, through the courtesy of the Illinois State Board of Health, the report of Prof. Long, of the Chicago Medical College, on the diseased meat which was spoken of in our editorial of July 25, as having caused severe illness at Momence.

It will be seen that the opinions then expressed as to the cause of the illness are borne out by Prof. Long's examination. It will be remembered that none of the symptoms in those cases were such as could be attributed to the direct influence of micro-organisms; though it is highly probable that bacteria were the indirect cause, by leading in some way, not yet known, to the formation of ptomaines.

So far as we are aware, this is the first case in which ptomaines have been systematically sought for and found by an American chemist. Great credit is due to Prof. Long for the careful manner in which he conducted his analyses in this case; more especially for his control experiments, and for the care taken to eliminate sarkin and kreatinine, which give reactions that might be misleading.

Right on the heels of this report comes the information that an epidemic similar to that at Momence, though more severe, has occurred at Porter Station, Indiana. Within three days, up to August 4, five persons have died, leaving fifteen dangerously ill, and about twenty-five others whose condition is as yet uncertain. The village of Porter is supplied with meat from Chestertown, one mile east of the Lake shore. It has been ascertained that the meat at Chestertown has not been kept in good condition, the night watchman and a physician having testified that the most unpleasant odors were emitted from the place, showing that the meat was in an advanced stage of decomposition. If possible we will give a full report, medical and chemical, of this epidemic in a subsequent issue of the JOURNAL.

## SPECIAL ARTICLE.

### THE DISEASE AT MOMENCE, ILL.

The following is the report to the Illinois State Board of Health, by PROFESSOR JOHN H. LONG, on the Chemical and Microscopical Examination of Poisonous Meat from Momence (see JOURNAL of July 25).

The samples received were numbered 1, 2, 3, 4 and 5, of which 1 and 3 were in alcohol, and 2, 4 and 5 dry. Another sample was placed in my hands by Dr. O. C. DeWolf, Health Commissioner of Chicago, which sample was obtained from the house where the death occurred after eating the meat, and which I shall speak of as No. 6.

Preliminary examinations made with small portions of the meat showed the absence of metallic poisons and worms, the presence of which latter was first reported from Momence. In the chemical analysis I followed the Stas-Otto process, and I will add here that the ethyl alcohol, ether and amyl alcohol used in my extractions were prepared by me especially for toxicological work, and no pains had been spared in making them exceedingly pure.

Samples 1 and 2 were minced and extracted together, 3 and 5 were taken together, and 6 alone. Sample 4 was small and was used only for microscopic tests, to be referred to later. In the first alcoholic extraction from the original meat dilute sulphuric acid was used to acidify the mixture of 1 and 2, and 6, while tartaric acid was used in 3 and 5. The ether extracts from the *acid* water-solution left on evapoation slight residues, which gave, however, no alkaloid reaction. These ether washings were repeated twice in each case, and the final ones were colorless. The

usual precautions were taken before making the next extraction from the alkaline water-solution; the ethereal washings here were evaporated to dryness, leaving slight residues which consisted of soluble matter from the original meat. Small amounts of sarkin and kreatinine may appear here, as I have determined by parallel experiments on other meat.

After expelling the dissolved ether I next treated with warm amyl alcohol, as in the process given by Uslar and Erdmann. The two liquids were separated in the usual manner, and the process repeated with fresh amyl alcohol. The extracts so obtained were evaporated to dryness, and the residues tested. These were crystalline in No. 6, and in the mixture of 3 and 5, but amorphous in the mixture of 1 and 2; and were completely, though with difficulty, soluble in hot water and alcohol. They are colored yellowish red by strong nitric acid, and assume a light reddish color with strong sulphuric acid. They give decided alkaloid reactions with phosphomolybdic acid, metatungstic acid, tannic acid, iodide of mercury and potassium, iodine in potassium iodide, but nothing with picric acid.

Of the organic bases present in normal meat there are three which respond to some of these tests. Kreatine is one of these, but its reactions with phosphomolybdic acid and metatungstic acid are to form soluble crystalline compounds, while I obtained yellowish white flocculent precipitates. Besides this, in the several processes of extraction and evaporation small amounts of kreatine could be converted into kreatinine (the reverse action sometimes takes place), and kreatinine, whether so formed or already present, gives certain alkaloid reactions. But the combinations with phosphomolybdic acid and metastungstic acid are crystalline, and settle out very slowly, as I have determined in parallel tests (see also Neubauer and Vogel, "Harnanalyse," 8th edition, p. 15). Kreatine is much more soluble than the residues I obtained, and although a small amount of it was doubtless present, it could not deceive in the tests. Another substance is sarkin, and I am inclined to think the reactions of this body have not been sufficiently considered in the discussion of the detection of animal alkaloids. It gives precipitates with phosphomolybdic acid and metatungstic acid which are white and flocculent, but it seems to give nothing with tannic acid or iodide in potassium iodine; at any rate, not in solutions certainly stronger than were those under investigation.

The phosphomolybdic acid precipitate with sarkin turns blue on addition of caustic alkali, and slowly dissolves. As I obtained a slight blue color when I applied this test, it was necessary to eliminate sarkin before going further. Nearly the whole of the residue from the sixth sample was saved for this purpose, and I precipitated the base by the method of Strecker, as given by Neubauer (*Fresenius' Zeitschr.*, 1867, p. 33), with ammoniacal silver nitrate. A very slight precipitate was formed and filtered off, and after freeing the residue from the excess of silver and the ammonia compounds, the tests were again applied. Sarkin was absent and the alkaloid reactions seemed as sharp as before, indicating the presence of a body of this character. The reactions I have noted in these experiments do not correspond to those of any alkaloid with which I am acquainted; yet I think I am quite justified in affirming the presence of a body of this class. It must also be mentioned that the amyl alcohol extracts gave immediate reduction tests with potassium ferricyanide (Brouardel and Boutmy, *Fresenius' Zeitschr.*, 1882, p. 621).

The small quantities of meat at my disposal rendered the investigation very tedious and difficult, and it is not possible to define the nature of the substance found any clearer than I have done. Without doubt it belongs to the class of bodies known as *ptomaines*, but to identify it with anything discovered by Selmi, Schwanert, Brouardel and Boutmy, Gautier, or others, is scarcely possible, as the investigations of some of these observers were carried out on quantities of decomposing flesh as small as I acted upon, and the results obtained were necessarily more or less incomplete. Notwithstanding recent remarkable investigations, it is yet too soon to consider any of those bodies as described with absolute certainty, and with others I would say that the whole discussion shows the necessity of extreme caution in toxological inquiries.

In addition to the chemical tests described above, I have also made numerous microscopic examinations of cross and longitudinal sections of the meat. A number of these were prepared for me by Dr. Lester Curtis, of Chicago, to whom I must here express my thanks. Sections have been made from samples 1, 2, 4, and 6, and the appearance of these indicates a diseased condition of the meat, different from that of normal specimens which I have examined. The decayed appearance is not uniform throughout a section, but is found in spots, and this is perhaps more apparent in cross sections than in longitudinal. In the former, groups of fibres can be found which have a loose, honey-combed appearance when seen under a high power. It must be said, however, that I have examined many slides in which nothing abnormal could be found. In most of the sections I find an abundance of micro-organisms, some of which are very small, not more than .001 mm., while others are somewhat oval and have a longer diameter of fully double this. They can be found in sections cut from the centres of the several samples, and evidently in as great numbers as in those from the outside.

In his report made to the Board, Dr. J. H. Utley states that in one case the meat had been fried in butter, and the symptoms after eating it were the same as in the other cases. I consider this an important point, as showing beyond doubt that the micro-organisms referred to could not be considered the direct cause of the disease. At the temperature which meat frying in butter certainly reaches, all such bodies would be rendered harmless, while we have no ground for believing that substances of alkaloid nature would be made inert by the same process. I am therefore inclined to think the micro-organisms and poisonous substance may be looked upon as cause and effect, and I consider it probable that the symptoms observed were due to the action of the latter.

# SOCIETY PROCEEDINGS.

## THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

WEDNESDAY, JULY 15. EVENING SESSION.

DR. G. C. HARLAN reported *two cases of Congenital Paresis of the External Rectus*, and also exhibited and described *Borck's Sphero-cylindrical Lenses.*

DR. J. L. MINOR, of New York, reported

THE REMOVAL OF A BIT OF STEEL FROM THE LENS WITH THE ELECTRO-MAGNET.

M. S. was struck, one week before coming under observation, by a piece of steel. There was a small stac in the cornea, and vision was much reduced. There was clearly a piece of steel in the lens, which the doctor desired to remove at once. After consultation it was thought advisable to await the development of some symptoms. The patient was therefore given atropine and instructed to return if the eye gave any trouble. Some time later the eye became irritable; there was considerable ciliary injection; there was haziness, and the tension was increased. Cocaine was employed and iridectomy performed. The shank of a strabismus hook was touched to an electro-magnet, thus making it a magnet. The extremity of the hook was then carried into the lens and the piece of steel at once attached itself to it and was removed. Thirteen days later the eye had recovered from the operation. The lens has not yet been removed.

DR. R. H. DERBY reported a case of

MAL-FORMATION OF THE UPPER LID.

In this case there was a fissure of the upper lid from the angle of which a portion of skin projected in a peculiar manner.

DR. A. MATTHEWSON, of Brooklyn, reported the

REMOVAL OF EPITHELIOMA OF THE EYE-LID BY APPLICATION OF BENZOLE AND CALOMEL.

O. D., laborer, 50 years of age, was seen October 3d, 1881, with tumor on the right lower lid. This first appeared as a warty growth three years previously. Of late it had been rapidly growing, and presented a raw, granulated surface. Careful examination by an expert showed it to be undoubtedly epithelioma. It was treated by frequent dustings of calomel, after brushing the surface with benzole. The tumor entirely disappeared until a few months ago, when a granular spot appeared at one edge of the site of the former growth. This disappeared under a renewal of the same treatment.

DR. H. S. SCHELL, of Philadelphia, reported a case of

LIPOMATOUS PTOSIS.

Under this head the speaker reported four cases of ptosis from excessive accumulation of fat in the upper lids. The condition occurred in young women between the ages of 18 and 25. The deformity was symmetrical, the weight of the lid causing it to cover one-half of the cornea. The excessive fat was removed through a horizontal incision. The smallest amount taken away was 35 grains. The levator regained power in from one to four weeks. In one case it was necessary to repeat the operation.

DR. WEBSTER FOX, of Philadelphia, reported some

CLINICAL OBSERVATIONS.

Case 1. *Congenital Cataract in Both Eyes Successfully Operated on in a Patient Sixty Years of Age.*—H. H., a negro, aged 60, presented herself at the Germantown Hospital February 4, 1884. Congenital cataract of both eyes was found. The use of a four-grain solution of atropia produced no dilatation of the pupils; there was simply light perception. Shortly afterwards the right lens was removed and the wound rapidly healed. At the end of eight days the patient could see, but could not name objects without touching them. The lens of the left eye was subsequently removed. The effect of the acquisition of sight after sixty years blindness was carefully described by the doctor. The lens when removed were found to be of a spherical shape. The optic nerve presented an oval outline.

Case 2. *Recovery of Useful Vision after Eighteen Years Blindness.*—R. L., aged 37 years, was injured in the left eye when three years of age. Two years subsequently sympathetic ophthalmia developed in the right eye, resulting in qualatative perception of light only. An iridectomy was done at the Germantown Hospital in June, 1884. The media were found to be clear. When admitted to daylight complained of erothropsia to such an extent that dark glasses were ordered. This disappeared in the course of three months. A plus 10 D spherical glass was ordered for distant use, and A plus 14 rendered near objects visible. Subsequent examination showed that better vision was obtained by a combination of spherical and cylindrical lenses.

DR. LUCIEN HOWE, of Buffalo, read a paper on

THE PULSATING VARIATIONS OF INTRA-OCULAR TENSION AS MEASURED BY THE MANOMETER.

In calling attention to the variations of intra-ocular tension some attention also was given to various forms of manometer, or instruments for its measurement. The earlier forms consisted simply in a U-shaped tube of glass, connected by a flexible tube to a trocar. When the trocar was introduced into the anterior chamber of the eye, the intra-ocular pressure would tend to force the fluid through the tube and show the degree of pressure by a rise in the opposite column of the U-shaped tube. This was imperfect, for the reason that when the aqueous humor escaped from the eye, it was at once in an abnormal condidition. The double manometer described by Grasser and Holzke obviated this difficulty. In this, however, there was an imperfection in the trocar, which was rather complicated and liable to get out of order. An improvement was accordingly suggested in having a stop-cock attached to a needle of the hypodermic syringe, and this the writer found to serve the purpose much better than any other. The animal best adapted to this class of experiments is the cat, on account of the deep anterior chamber.

In the earlier experiments with the manometer,

was noticed that the inter-ocular tension varied with the heart's action. In addition to this the writer called attention to the fact that these variations in the pressure, as indicated by the manometer, correspond to pulsations which can be seen with the ophthalmoscope in the vessels in the interior of the animal's eye. In other words, if the same thing holds in the human subject, we must infer that when pulsation is seen in the interior of the eye, there is also a variation of intra-ocular tension, although not enough to be detected by the touch, or by an ordinary instrument. This connection between pulsation and pressure is a demonstration of the cause of venous pulse in the eye, as explained by Donders. It was also observed that after the introduction of the needle there was at first considerable pulsation, but after a short time this ceased, the eye evidently adjusting itself to the unusual condition. The experiments referred to were made in the laboratory of Prof. Zunzt, of Berlin.

DR. KNAPP reported

NINE CASES IN WHICH THE ELECTRO-MAGNET WAS USED FOR THE EXTRACTION OF CHIPS OF IRON FROM THE INTERIOR OF THE EYE.

These cases were operated on during the last three and a half years. In two the chip of iron was located in the iris, in one for two days, causing inflammation; and in the other for 17 years, remaining quiet until recently. Both were successfully removed without deterioration of the eye. In the seven remaining cases, the foreign body was in the vitreous, had produced cataract, and could not be seen. In three cases the attempt to extract them with the magnet failed, and the eyes had to be enucleated. In four cases, the chips of iron were brought forth at the first, second, or third introduction of the tip of the magnet. In all these four cases, the recovery was smooth. All four are still cataractous. In two the form, size and tension of the globe is not changed, and the perception of light is good over the whole field. In the two others the globe is slightly smaller and softer, and the field of vision defective, corresponding to the wound made for the extraction of the foreign body. There was no irritation in any of the four eyes as long as they were under observation.

DR. H. KNAPP discussed the use of

THE ACTUAL CAUTERY IN DESTRUCTIVE CORNEAL PROCESSES,

and cited a number of cases in which its use had been of service, and considered it a valuable measure.

DR. HOWE had employed this measure in three cases, and the corneal ulcer had been somewhat lessened.

DR. E. WILLIAMS had for the past fifteen years been in the habit of treating phlyctenular ulcers of the cornea by the application of pure carbolic acid, and had found it to act admirably.

DR. O. F. WADSWORTH had for several years been in the habit of using carbolic acid for ulcus corneæ serpens and for sluggish, painful infiltrations of the cornea. In sluggish infiltration the application is preceded by scraping, and in some cases the simple scraping has been sufficient. When the ulcus corneæ serpens had been severe, he did not recall that it had entirely stopped the process. In a recent case, in which the acid was applied at the beginning of the affection, three applications checked the disease.

THURSDAY, JULY 16, SECOND DAY.

DR. W. F. MITTENDORF, of New York, read a paper on

PNEUMOPHTHALMOS, OR AIR IN THE VITREOUS HUMOR.

The entrance of air into the interior of the eye will occur at times during an operation, as, for instance, a cataract extraction. In such cases the air may get into the anterior chamber, whence it can be removed with ease. It is, however, entirely different when air gets into the vitreous chamber. Fortunately, this accident is of such rare occurrence that so far no description of it has been given. The writer has seen two cases of this kind within the last two years. Both occurred in connection with injuries caused by the entrance of foreign bodies into the interior of the eye. Such accidents are usually so serious that any complication of them becomes a matter of great interest. The first case was that of a young blacksmith who was wounded by a piece of iron penetrating the sclera and lodging in the vitreous humor. The foreign body, surrounded by a clot of blood, was found at the bottom of the eye. Behind the lens and a little above it, three air bubbles were seen by means of the ophthalmoscope. These appeared to be of the size of a small pea, the smallest about as large as a rape seed. They closely resembled the air bubble as seen under the microscope, their centres being bright and the outlines well defined and surrounded by a sharp black border. Their recognition was not difficult. The foreign body could not be removed with the magnet, and it was decided to allow it to remain. The eye was carefully bandaged, and the day following it was found that the air bubbles had united and were located at the posterior pole of the lens, the patient having remained quietly on his back some time before the examination. While he was in the upright position the air began to rise slowly until it reached the upper part of the vitreous chamber. During this trip the bubble looked oval and decidedly pointed at its lower portion, resembling oil globules as they are seen ascending in water. Forty-eight hours after the accident, every trace of the air bubbles had disappeared.

The second case reported was the result of drilling accident. A pretty large piece of stone or iron had perforated the sclera at the lower and outer part of the eye. In the semi-transparent vitreous an air bubble of the size of a hemp seed could be seen distinctly.

In order to determine the exact appearance of air in the vitreous, the writer experimented upon rabbits' eyes. Four of them had air introduced into the vitreous humor by means of a hypodermic syringe, and four were subjected to the introduction of oil, also by means of the hypodermic syringe. Nearly all these experiments were successful. The difference between the air and the oil bubble was so marked that they could be readily diagnosed by means of the ophthalmoscope. The latter were more highly re-

fractive, heavier in appearance, and the contour decidedly darker than the air bubbles, which were entirely colorless. The conclusions reached by the author were as follows:

1. The entrance of air into the vitreous body can occur only after a part of the contents of the vitreous chamber has escaped.

2. It is favored by the entrance of a foreign body which makes a large gaping irregular wound of the sclera.

3. In order to allow air to enter the vitreous humor, this must either be quite fluid or its anatomical arrangement must have been disturbed by the entrance of a foreign body, or the air must have been attached to the foreign body and be thus carried with it into the eye.

4. The air in the vitreous humor appears like an air bubble as seen under the microscope. It is more or less round, highly refractive in the centre, and has a sharply defined black outline.

5. Oil globules in the vitreous present a similar appearance, but they look heavier, are not perfectly colorless, and their outlines are larger; they are also more glittering in the centre.

6. Air bubbles will be completely absorbed within two or three days. Their presence is not a source of great danger to the eye. Oil globules last longer, but they are likewise non-irritating.

Dr. Myles Standish, of Boston, reported a case of

TUBERCLE OF THE IRIS.

The patient was a girl fourteen years of age. There was absolutely nothing of a specific character in the history of the patient, her parents or her brothers and sister. During the past winter she was confined to bed with intense pain in the epigastrium and ascites, which were attributed by the attending physician to hepatitis. No pulmonary lesion was detected. At the time she came under observation, the eye trouble had existed for four weeks, but there had not been much pain or photophobia. Examination showed the iris attached by its pupillary margin to the capsule of the lens, somewhat atrophied in appearance. On it there was a growth, 2 mm. in diameter, pink in color, with small vessels on its surface. The growth projected from the iris near its ciliary border. Various mydriatics were employed without any effect upon the pupil. In the course of a month the growth had doubled its size. Other growths making their appearance, the eye was removed.

Examination after enucleation showed the vitreous, retina and choroid to be normal. The lens was somewhat opaque. The iris was very adherent to the capsule of the lens along its pupillary border, and also beneath the area of the principal growth. There were in all, four growths, but none of them involved the ciliary body. The microscopical examination by Dr. Ernst, of Boston, showed the presence of giant cells and bacilli tuberculosis. He considered it an undoubted case of tubercle of the iris.

Dr. Knapp had seen growths presenting exactly the same appearance which had disappeared under the use of specific treatment with mercury, even where there was no evidence of syphilis. He had never felt warranted in making the diagnosis of tubercle in such cases, although the presence of the tubercle bacilli in this case would seem to confirm the diagnosis.

Dr. C. J. Kipp reported a case of

CONGENITAL COLOBOMA OF THE IRIS, CHOROID, ETC.

The patient was a woman 69 years of age. She was first seen four years ago. There were at that time no inflammatory symptoms, but a small triangular coloboma of the iris was found exactly in the vertical meridian. The tension was above normal. The patient had never seen with this eye, but it had never given pain. Four years later the patient was again seen, and the eye presented the signs of inflammatory glaucoma. The pain had prevented sleep for many weeks. The eye was enucleated and healed promptly. There was also found a large ectasia of the sclerotic, and over this the choroid and retina were wanting. The ectasia extended close to the optic papule. There was also a deep kettle-shaped excavation of the optic nerve.

Dr. S. D. Risley, of Philadelphia, reported a case of

COLOBOMA OF THE CHOROID ON THE TEMPORAL SIDE.

A young physician consulted Dr. R. for asthenopia. There was a considerable degree of myopia in the left eye. In the right eye vision was much diminished, $-\frac{20}{200}$. The ophthalmoscope showed a large hiatus in the choroid of the temporal side, the depth of which was 3 D. The speaker thought that these cases were comparatively rare.

Dr. Mittendorf had seen several of these excavations in the outward direction. Where the coloboma was so deep it was, he thought, probably a coloboma of the optic nerve sheath with excaavtion of the nerve. A difference of 4 D. would indicate a greater defect than would correspond to absence of choroid and retina alone.

Dr. W. W. Seely read a paper on

SEROUS EFFUSION IN THE VITREOUS DUE TO MALARIA.

He considered the occurrence of this complication not infrequent, and he reported one case of this affection.

Dr. Wm. F. Norris read a paper on

GREY DEGENERATION OF THE OPTIC NERVE WITH ABNORMAL PATELLA REFLEX.

After an elaborate review of the literature of the subject, the speaker gave the results of his observations in cases in which the patella reflex was increased or diminished, and described three cases of grey degeneration associated with tabes dorsalis which had come under his observation. While he did not hold that this symptom indicated beginning tabes dorsalis, yet it was a danger signal calling for rest of the brain and cord, with attention to improvement of the general condition.

Dr. O. F. Wadsworth reported a case of

DOUBLE OPTIC NEURITIS AND OPHTHALMOPLEGIA FROM LEAD-POISONING, COMPLICATED WITH TYPHOID FEVER.

A boy of 9 years of age had suffered from obscure

febrile symptoms for several weeks, and movements of the left eye had been observed to be imperfect. When first seen by Dr. Wadsworth, there was pronounced optic neuritis in both eyes. The rest of the fundus normal. Vision was much diminished. No lateral movements of left eye could be made, and movement downward was impaired. The outward movement of right eye was defective. The probable diagnosis was tumor in the region of the pons. The movements of the eyes became still more impaired and vision sank. The boy developed pretty distinct symptoms of typhoid fever. The spleen and liver were both enlarged. Lead was found in the urine, and the diagnosis of tumor was then abandoned. The treatment was with iodide of potassium. The general condition gradually improved. The neuritis passed into atrophy, leaving too little vision to count fingers. The movements of the eyes were completely restored and the lead disappeared from the urine. The cause of the lead poisoning was found to be the presence of a piece of lead pipe in the cistern from which the drinking water was obtained.

DR. JOSEPH A. ANDREWS, of New York, read a paper on

OLIVE OIL AS A MENSTRUUM FOR DISSOLVING COCAINE FOR APPLICATION TO THE EYE.

In addition to the occasional benefit from the use of oil dropped into the eye in recent abrasions from burns and in other painful affections of the cornea in which atropia is indicated, cocaine may likewise be serviceable. The plan of dissolving the cocaine in oil seems to insure a longer contact of the remedy, and a smaller quantity is required to effect anæsthesia, two qualities of especial advantage in operations on the eye.

Neither the salt of cocaine nor of atropia is soluble in olive oil, but the alkaloid of both dissolves readily in the menstruum without the addition of an acid, it being only necessary to expose the solution for a few minutes to a gentle heat in a water bath. Castor-oil is not a desirable menstruum on account of its irritating qualities, and the oleate of cocaine, for the same reason, is still more objectionable as an application to the eye.

DR. E. WILLIAMS read a paper on

QUININE AMAUROSIS.

He reported two cases. In the first case, a man took about one ounce in the course of four days. This produced total blindness and deafness, but in six weeks he could see as well as ever. The hearing had never completely returned, although the quinine was taken eight years ago. The field of vision was concentrically contracted in both eyes. The optic disks were very white, the calibre of the arteries and veins was reduced, and the smaller capillaries could not be seen.

The second case was that of a boy of 14 who had received large doses of quinine, the exact amount not being known. He was totally blind four days. When examined, the sight was much diminished and the atrophy of the optic disks was extreme, and there was great contraction of the field of vision.

DR. LUCIEN HOWE described his method of

MEASURING THE AMOUNT OF ANÆSTHESIA FROM COCAINE.

The doctor exhibited the drawing of a kymograph which he had used for this purpose. The use of the instrument was based on the fact that irritation of a sensory nerve is followed by a rise of blood pressure. The instrument is connected with an artery and the conjunctiva is irritated. Cocaine may then be applied and the results on the blood pressure compared.

DR. DENNET, of New York, exhibited

AN ARRANGEMENT FOR USING STOKES' LENS FOR MEASURING ASTIGMATISM,

and to avoid the inconvenience of constantly removing the frame from the patient's nose. The lens was mounted on a stand and could thus be placed in front of the patient.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President, Wm. F. Norris, M.D., of Philadelphia.
Vice-President, Hasket Derby, M.D., of Boston.
Secretary and Treasurer, O. F. Wadsworth, M.D., of Boston.
Corresponding Secretary, J. S. Prout, M.D., of Brooklyn.

The following

NEW MEMBERS

were elected: Drs. Chas. A. Oliver, of Philadelphia; Edward Jackson, of Philadelphia; B. Alexander Randall, of Philadelphia; D. Pope Walker, of New York; Wm. O. Moore, of New York; Frank G. Capron, of Providence; S. M. Burnett, of Washington, and Wm. T. Bacon, of Hartford.

The next meeting will be held at New London, on the third Wednesday in July, 1886.

## STATE MEDICAL SOCIETY OF WISCONSIN.

*Thirty-ninth Annual Session, held in Milwaukee, June 2, 3 and 4, 1885.*

THE PRESIDENT, E. W. BARTLETT, M.D., OF MILWAUKEE, IN THE CHAIR.

DR. BARTLETT'S

PRESIDENTIAL ADDRESS,

the title of which was "Yours Fraternally," and which was largely concerned with ethical questions, was referred to the Committee on Ethics for consideration. As a result of the discussion arising from this address the Committee reported the following resolution, which was unanimously adopted:

*Resolved*, That the State Medical Society of Wisconsin hereby re-affirms its steadfast adherence to the Code of Ethics of the American Medical Association.

DR. W. MEACHER, of Portage, presented two papers; one on the comparative merits of *Syme's and Pirogoff's Methods of Amputating the Foot*, each of which the reader thought had value according as the patient could or could not obtain an artificial foot. The second paper was on *Rectal Surgery, with particular reference to the treatment of Fistula and Hæmorrhoids.*

Dr. S. Marks, of Milwaukee, read a paper on

HERNIA, INGUINAL AND FEMORAL,

making a strong plea for the use of narcotics in cases of inguinal hernia when reduction was difficult, and there were no symptoms indicative of immediate danger. The experience of the last fifteen or twenty years had greatly changed the speaker's views as to the propriety of early operation in such cases, and whereas formerly, he would have operated promptly on failure of the efforts at taxis, now he would push opiates for twenty-four hours or more, keeping his patient fully under their influence, and using taxis from time to time. Of course he would not advise delay where there were fæcal vomiting and other urgent indications of a necessity for operating, neither would he advise waiting in case of femoral hernia after attempts at reduction had failed. Under such circumstances he would operate at once, but where danger was not imminent in the inguinal form of the accident he fully believed that he had proved the value of narcotism and delay in many cases.

Dr. La Count, of Chilton, exhibited a

FEMUR FROM A CASE OF AMPUTATION FOR OSTEO-MYELITIS.

The bone showed clearly the characteristic effects of the disease and the manner in which adjacent joints became involved.

Dr. G. F. Witter, of Grand Rapids, showed a photograph of an

INFANT SUCCESSFULLY OPERATED ON, AT THE AGE OF FOUR WEEKS, FOR HARE-LIP AND CLEFT PALATE.

The facial deformity was very marked and there was great difficulty in administering nourishment; hence the necessity for early interference. He had never before performed the operation on so young a child, but in view of the degree of success attained in this instance he thought that he should hereafter favor early operation in similar cases.

From the Committee on Obstetrics and Gynecology, Drs. Armstrong, Davies and Stalker presented papers. Dr. Armstrong reviewed the progress made during the past decade, especially in *Surgical Gynecology*. Dr. Davies discussed the *Ignorant Use of Ergot* at the hands of midwives in obstetric cases, citing a case within his own experience in illustration; and Dr. Stalker presented an account of a *Case of Arrested Development*, with photographs of the fœtus.

From the venerable Dr. Harmon Van Dusen, of Mineral Point, who has been for thirty years an active member of the Society and has filled the Presidential chair several times, and who, until prevented very recently by his great age, has never failed to honor the annual meetings by his presence, the Society received as a souvenir the diploma by which, nearly sixty years ago, he obtained entrance into the ranks of the profession. The somewhat quaint document, which was issued in 1826 by the Onondaga County Medical Society, of New York, was presented on behalf of Dr. Van Dusen by Dr. Whiting, of Janesville. The Society accepted the gift and voted that it be placed in the rooms of the State Historical Society at Madison for safe keeping, and that the thanks and love of the association be conveyed to Dr. Van Dusen.

Dr. J. M. Dodson read a paper on the

TREATMENT OF PYREXIA.

The writer thought the cold bath frequently repeated the most effectual means of reducing temperature in fevers, and thought that the difficulty in the way of administering it in ordinary household practice might be met by using India-rubber bathtubs. The cold pack ranked next in value in his estimation, while cold affusions he thought were of very limited application. Of drugs, quinine occupied the first place as an antipyretic, but it must be used in much larger doses than usual in order to obtain its full effect. Recent clinical experience had shown that the fear of bad results from large doses of quinine was unfounded to a great extent. With kairin, antipyrin, etc., further experience was necessary before their value could be fully determined. The use of antipyrin certainly was not wholly free from danger.

Drs. Buckmaster and Wigginton, of the Committee on Nervous Diseases, presented papers on topics connected with *Insanity*.

Dr. Wigginton discussed the

RELATIONS OF MEDICAL MEN TO THE INSANE,

which he thought were possessed of a higher degree of importance than was sometimes assigned to them. There were some cases of insanity which ought to have the benefit of hospital treatment at the earliest possible time, and there were others for which the hospital was productive of harm rather than good, and the physician should take time and pains to discriminate between these classes.

In the debate which followed Dr. Wigginton's paper, it was suggested that as the law now stood, there was but little opportunity for making the full and exhaustive investigation of each case that the physician deemed advisable, and that the only way of meeting the difficulty was by the establishment of a special hospital to which all cases of alleged insanity should be sent for observation. Such a hospital would relieve the physician of much embarrassment, while it would on the other hand be better for the patient and his friends.

Dr. Buckmaster reported a case of *Mysophobia*, and read a paper entitled

ILLUSTRIOUS INSANE.

He pointed out the fact that even in their own day many of the prophets were accounted madmen, and said that were they living to-day their recorded proceedings would certify them as candidates for treatment. Mahomet, Joan of Arc, Martin Luther, John Bunyan, Swedenborg, the elder Booth, and many others were enumerated in his list.

A Special Committee on the

RELATION OF PHYSICIANS TO THE COURTS

was appointed at the meeting of the Society in 1884, Dr. F. W. Epley, of New Richmond, being chairman. Dr. Epley reported that the Committee had prepared a bill providing for the proper compensation of witnesses called to testify to matters of opinion, and had introduced it into the legislature, but

that it had entirely failed to receive favorable consideration, and that there seemed no use whatever in making further efforts in that direction, as the law makers could not be brought to see that there was any difference between scientific opinion and evidence as to matters of fact.

After a full discussion of the Committee's report, DR. G. H. FOX, of Oregon, said that if the Society would back him up he would agree to make

A TEST CASE IN THE COURTS

when next summoned on subpœna as an expert, by refusing to be sworn or to testify unless properly compensated. He thought that if the profession generally would pursue this course, it would not take long to bring the courts and the legislature to a sense of the value of their knowledge.

DR. MCLEOD also expressed his willingness to make a test case for the courts, and it was resolved that a Committee be appointed with power to levy an assessment on the members of the Society for the purpose of raising a fund to pay the cost of making up a test case for the Supreme Conrt.

DR. GAPEN said that he had had occasion to look up the matter, and that there was thus far no precedent established and recorded in any court of the United States concerning the right of expert witnesses to compensation, and that the action of the Society in this matter would be of interest to the medical profession of the whole country.

Various papers were presented from other Committees, among which were one on *New Remedies*, by Dr. Stockman; one on *The Diagnostic Value of Koch's Cholera Bacillus*, by Dr. Farnham, which was illustrated by microscopic preparations, one made in Koch's own laboratory; a paper on *Medical Humbugs, Regular and Others*, by Dr. Berwig; an account of a case of *Compound Fracture of the Ankle*, by Dr. McArthur; and one of a case of *Periostitis*, by Dr. G. H. Fox.

DR. G. M. STEELE, of Oshkosh, was elected President for the ensuing year, and DRS. S. C. JOHNSON, of Hudson, and D. C. DAVIES, of Columbus, first and second Vice-Presidents. DR. J. T. REEVE retains the office of Secretary. Drs. J. R. Barnett, T. P. Russell and L. G. Armstrong were elected to the Committee on Ethics, and Dr. N. Fenn was reëlected Censor for three years.

About twenty new members were admitted, four of whom were ladies, this being the first occasion of the admission of female members to this Society.

Courtesies were exchanged with the Provincial Medical Society of Ontario, which held its annual session at the same time, and communications were received from the State Societies of New Jersey and Nebraska and from the American Medical Association.

The resident physicians of Milwaukee entertained the Society at the Plankinton House on Wednesday evening, June 3, and the Directors of the Sanitarium at Waunatosa invited a visit to that institution, placing a special train at the disposal of the Society.

The city of Madison, in which the Society held its first meeting, was selected as the place for the fortieth session, which will commence on the first Tuesday of May, 1886.

# STATE MEDICINE.

## SANITARY CONVENTION AT YPSILANTI, MICHIGAN.

Great interest was manifested in the Ypsilanti Sanitary Convention, which was held June 30, and July 1, 1885, under the auspices of the Michigan State Board of Health. The physicians of Ypsilanti, the professors of the State Normal School, and a large number of other prominent citizens of that place were in constant attendance. About twenty physicians and health officers from other places were also in attendance.

C. L. YOST, Mayor of the city, opened the convention with a brief address of welcome, in which he said that "In times past we have been honored with the presence of other assemblages for consultation upon religious, political, medical, or other interests; but this is the first time that disinterested philanthropists have come to us to discuss those great practical questions relating to the guardianship of public health." He thought that the adage "An ounce of prevention is worth a pound of cure," was the inspiring motive that brought them together. Their city was more than usually blessed with conditions for good health; still they recognized the value of detailed instruction in sanitary subjects. Sanitary science is in its infancy, and all attempts to further it and bring intelligent attention to its teachings should be welcomed by thinking men everywhere.

EDWIN WILLETS, President of the Michigan State Agricultural College, presided over the convention; and in his address dwelt upon the

VALUE OF HUMAN LIFE CONSIDERED FROM AN ECONOMIC STANDING-POINT

as worked out by eminent statisticians. A number of people who should produce $3,000,000 when in good health, could produce when not in good health only $2,000,000. Here is a loss of one-third, much of which could be saved by applying the simplest sanitary precautions. It is the duty of a community to keep these human earning-machines in good condition of health or earning capacity, even from economical motives. A community has the legal right to do this. We want pure water and plenty of it, clean streets, cleansed sewers and drains, swamps drained, cesspools filled up; and we should not count the cost on our fingers. The crowning labor of our medical science is in the warding off of disease. Given by heredity a sound constitution, pure air, pure water, and nutritious food ought to guarantee to every human being, as he puts his foot on this earth, his three score years and ten, with which assurance he might plan the labors of a long life.

REV. DR. WOODRUFF, of Ypsilanti, read a paper on

THE MORAL EFFECT OF SANITATION.

He told of the importance the ancient Jewish people gave to sanitation; and in a forcible way pointed out its power in elevating man morally as well as socially and physically. He thought the present attention given to sanitary matters is not temporary. The reform has come to stay.

PROF. AUSTIN GEORGE, of the State Normal School, spoke of the

SANITARY NEEDS OF SCHOOL BUILDINGS AND GROUNDS.

1. School sites should be on gravelly soil, a natural knoll, admitting thorough drainage. 2. Wells should not be nearer than 100 feet to the outhouses. 4. Basements should be high, with free circulation of air under ground floors. School rooms should contain 250 cubic feet of air space for each child. The light should come in over the left shoulder. The windows should go to the ceiling, and within three-and-one-half feet of the floor. The blackboard should be on the side of the room opposite the windows, and never have a glossy surface. 4. The simplest heating and ventilating apparatus is the hot-air furnace, and for small buildings the jacketed stove. The foul air outlets should be ample, and at the floor level. With any system, the rooms should be frequently flushed with fresh air through windows and doors. The temperature should be kept at 70° Fahr., not by teachers' sensations, but by thermometers. 5. Perfect desks and benches are not yet made; they should be adjustable, to suit different sizes, and be constructed with reference to the curves of the body. There should be foot-rests which could be raised or lowered until each pupil is made comfortable and able to take a healthful position. Many spinal complaints and pulmonary diseases are produced by improper desks. 6. Means for drying wet wraps should be provided. 7. Precautions against fire should be had, especially in the heating apparatus and the chimney. 8. "Inasmuch as the State educates the children, and compels their attendance in public buildings, the State should see that the children are not subjected to any preventable cause of disease."

DR. BION WHELAN, of Hillsdale, Mich., spoke on

SANITATION IN SMALL CITIES.

The water supply should be guarded from contamination from cesspools and vaults. If we could not have sewers, the most feasible plan for disposing of garbage is to divide the city into districts, and have it removed by licensed scavengers. Sanitary science should be taught in schools. The women should be taught sanitary needs, as much of sanitary work falls upon them. The nature of contagious diseases, and means for their restriction should be known by all.

DR. J. K. KELLOGG, of Battle Creek, spoke of the

DISPOSAL OF SLOPS AND GARBAGE,

illustrating by use of the blackboard. He pictured in a graphic way the ordinary condition of back-yards, as contrasted with front-yards. He prefaced his subject proper with a brief description of bacteria and other low forms of microscopic life, and showed the relation of these to decay, no decay being possible without their intervention. He showed the importance and usefulness of certain sorts; the dangerous nature of others. He spoke of flies in relation to filth. They are a very strong indication of the presence of filth, and consequently of germs, and it is even believed that the germs of certain diseases may be spread by them. Whenever a house is full of flies, you may be certain that slops or garbage of some sort has been allowed to accumulate about the premises. He stated that the air about cesspools, foul drains, and other filthy places is usually swarming with micro-organisms, and he believed that even if such germs were not the direct cause of certain diseases, the continual breathing of such air predisposes thereto. All sources of filth should be carefully and speedily removed from the habitation and its vicinity. Garbage can be reduced to a minimum by a little attention to domestic economy. Much food that becomes garbage through carelessness could be turned to good use if not neglected. Even after due care, however, some refuse will remain. So far as possible this should be burned. That is the best method of disposal. Where it is impracticable, a water-tight, covered receptacle can be used for receiving such refuse, which should be removed frequently by a paid scavenger, or otherwise. Slops should not be thrown upon the ground, into open drains, or into cesspools in the yard. He had known of frequent instances in which wells and cisterns were contaminated from the seepage of foul privies, drains and cesspools. If slops must be poured on the ground, set off a portion of the back end of the garden, and distribute the slops on different parts of it on alternate days, giving in this way some opportunity for the soil to oxydize the organic matter. Slops containing excreta from contagious diseases should be thoroughly disinfected.

DR. O. W. WIGHT, of Detroit, spoke on the

PREVENTION OF COMMUNICABLE DISEASES.

He showed clearly the contagious nature of those diseases; the great and unnecessary loss of human life resulting therefrom; and how they were best restricted, citing cases from his own long experience in Milwaukee and in Detroit. The main points in outbreak of a contagious disease are:

1. On the part of the householder and physician: (*a*) Speedy determination of the nature of the disease; (*b*) Prompt notification to Health Officer; (*c*) Cheerful acquiesence in regulations of Health Officer. 2. On the part of the health department: (*a*) Immediate separation of the sick from the well, as only those who are required to nurse should be allowed in the room; the sick room should be an upper chamber; (*b*) Strict quarantine of the premises, and placarding of premises; if smallpox, all exposed should be vaccinated in both arms; (*c*) Private funeral; (*d*) Thorough disinfection, after death or recovery by chlorine gas or fumes of burning sulphur, of bedding, clothing, premises, etc.

Dr. Wight thought that diphtheria and scarlet fever were sometimes spread by careless physicians,—criminal carelessness. During four years in Detroit he had witnessed a large growth of public sentiment in favor of public health work.

DR. VICTOR C. VAUGHAN, of Ann Arbor, next spoke on

WATER SUPPLY.

Sources of water-supply are three: cisterns, surface, and subterranean. Cisterns should always be plastered outside and inside, with an excavation at least two feet larger than the reservoir, so that a brick or stone wall may be built or plastered as above. Cistern water, when boiled and filtered, is the best for use. Dr. Vaughan cited cases in Ann Arbor and Adrian in which drain water percolated into cistern water, causing malignant typhoid fever. In the discussion of surface-water, he said that we had in this country all the conditions for the development and spread of the cholera germ should it once reach our shores. Well-water is a suspicious water, because of the ease with which contamination can be carried down through the sand and gravel into the well. Subterranean water is not necessarily pure. By carefully selected illustrations he showed that contamination may be carried through the soil a very great distance by the percolation of water, the water acting as the carrying agent.

DR. RUTH A. FRENCH, of Ypsilanti, read a paper on

MANAGEMENT OF EARTH-CLOSETS.

It is a practical way out of the privy nuisance for towns too small to have sewers and a general water-supply. Earth-closets deodorize the secreta; destroy germs of contagious disease; and are necessary to invalids.

ERWIN F. SMITH, ESQ., of Lansing, spoke on the

RELATIONS OF SEWERAGE AND WATER-SUPPLY TO THE DEATH-RATE IN CITIES.

His general propositions were: 1. Some method of sewage disposal is a necessity of civilized life; 2. Dry earth-closets, *properly cared for*, will answer for isolated dwellings and small villages, but water carriage is the only system adapted to large towns and cities; 3. The presence of typhoid and cholera is in an inverse ratio to the sewerage of a city; 4. The modern increase of diphtheria cannot be attributed to sewers; 5. The death-rate from all causes falls whenever a city is thoroughly sewered, and never attains its *ante-sewered* maximum; 6. Judged solely from the standpoint of pecuniary economy, the lowest of all standards, sewerage and water-supply can be successfully defended against all opposition.

The statistics used in this paper are drawn from the highest authorities, American and foreign; are brought down to the close of the year 1884, and in many cases cover long periods, 10 to 40 years. They show that typhoid fever has fallen off from one-half to nine-tenths in sewered cities since they adopted sewerage, and that such cities are practically secure from the ravages of cholera. *Per contra*, in non-sewered cities the typhoid fever and the cholera mortality is as great to-day as it was thirty years ago.

At the close of the convention arrangements were made for the organization of a Local Sanitary Association, the local committee of the Convention being a committee to complete this organization.

# FOREIGN CORRESPONDENCE.

## LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

*Deaths from Starvation and Privation—The London School of Medicine for Women—Shortening the Round Ligaments for Uterine Displacements—The Better Feeding of the People.*

The usual annual return of deaths in the Metropolitan district upon which coroner's juries have returned a verdict of death from starvation or accelerated by privation shows that the number of these deaths in the year 1884, was thirty-seven; of these, eight occured in the central division of Middlesex, twenty-six in the eastern division, two in the western and one in the Greenwich division.

In the absence of Mrs. Garrett-Anderson, the Dean of the London School of Medicine for Women, Mr. A. T. Norton read the report for the past year, at the late distribution of prizes and certificates won by the pupils. This stated that the year had been one of great progress, and there had been a larger entry of pupils than in any previous year. Fifteen pupils had joined last October, and two more in the summer. Five had passed the final professional examination of the King and Queen's College of Physicians, Ireland, and four the final examination. Two had passed the M. B. examination of the University of London, and seven students who had taken their diplomas have been studying in the large hospitals in Vienna. Referring to the success of past students, the report stated that Miss Julia Cook had been appointed medical officer to the Sunnyfield Convalescent Home; and Miss Tomlinson as medical officer to the Camden Schools. The experiment that had been tried of providing female medical officers for the female clerks in government offices had worked well in Liverpool, London and Manchester. After the distribution of the prizes Professor Gladstone congratulated the school on the progress it was making year by year. It was not the time now to discuss the question whether women should or should not be allowed to become properly qualified medical officers. That battle had already been won. Addressing the students directly, he said there could not be a higher and nobler life than the one they had chosen, and their power for good amongst the families they would be brought into contact with would be inestimable. He believed a great and successful future was before that institution. Mrs. Westlake moved a vote of thanks to Professor Gladstone, which was seconded by Professor Harvey, of Calcutta, who spoke of the immense good already done and to be done by woman doctors in India.

At the last meeting of the British Gynæcological Society a most instructive and interesting paper was read by Dr. Alexander, of Liverpool, on the "Operation of Correcting some Uterine Displacements by Shortening the Round Ligaments." Dr. Alexander pointed out that the operation had been performed in most of the large continental cities, and invariably with more uniform success than generally befell any new operation. He never found any difficulty in

finding and drawing out the ligaments. He made an incision upwards and outwards from the pubic spine, in the direction of the inguinal canal, for one and a half to two or three inches, according to the fatness of the subject. A considerable thickness of subcutaneous fat was then met with which must be cut through by subsequent incisions, until the pearly, glistening tendon of the external oblique muscle was reached. Midway through the fatty tissue an aponeurosis sometimes appears, so firm and smooth that it might cause the operator to think he was deep enough, but he would find no ligaments at this spot. The first stage of the operation consisted simply in cutting down upon the tendon of the external oblique muscle, until it appeared clean and shining at the bottom of the wound. The external ring was then found. The finger passed to the bottom of the wound detected the spine and the ring outside. Having isolated the external wound, and tied any little muscles, the next step was to find the end of the ligament. By everting all the structures upwards, the round ligament could be seen, generally at the lowest part, and with the white easily distinguished genital branch of the genito-crural nerve along its anterior surface and close to it. The ligament at this stage was more or less rounded in shape. It was an easily recognized flesh-colored structure. When the ligament was identified, the small nerve on its surface was to be cut through without dividing any of the ligament. Then gentle traction was to be made, either by the fingers or by broad blunt-pointed forceps. Bands, holding it to neighboring structures, were cut through with scissors. As soon as it began to peel out, it was left and the opposite side begun.

The final stage of the operation consisted in placing the uterus in position by the sound, and pulling out the ligaments until they were felt to control that position. A curved threaded needle, with fine catgut, was used to stitch each ligament to both pillars of the ring, and the external abdominal ring was closed without strangulating the ligament as it lay between it. The ends of the ligaments were now cut off, and the remainder stitched into the wound by means of the sutures that close the incision. A fine drainage-tube was inserted, and the wound washed out with carbolic or other lotion before these sutures were tied. The after-treatment consisted in rest. The tubes should be removed on the second day, when the wounds were dressed. As to the dangers of the operation, the mortality was stated to be nil. Three deaths had occurred but they were due to preventable causes. The real question at issue was whether the operation fulfilled the intentions of the operator, viz.: corrected certain uterine displacements and thereby relieved the discomfort of the patient, this, of course, must depend on whether or not the symptoms were due to the displacement. To secure success the operation must be properly performed, and the after-treatment must be rational, so that no strain might be placed on the ligaments until sound union had taken place.

The first of a series of receptions to promote the movement for the better feeding of the people, was held recently at the Parke's Museum of Hygiene. It was explained to the visitors that wheat-meal bread (instead of white) oat-meal, barley, lentils, haricot beans, etc., with the addition of fresh fruit and vegetables should, for the sake of both economy and health, be much more largely used than at present.

G. O. M.

## DOMESTIC CORRESPONDENCE

### QUADRUPLE PREGNANCY.

*Dear Sir*:—At 6 A.M., July 3d, I was called to see Mrs. D. R. Barnett. I found her greatly enlarged, with extreme œdema of the feet and legs. Labor had commenced four hours previously. Pains were frequent and regular, the os dilatable and a vertex presenting; the waters had not passed. After rupturing the sac labor progressed more rapidly, and about 8 o'clock a female child was born. The pains continuing, I examined again, and discovered a breech presenting, also in an unbroken sac. Shortly after rupturing this a male babe was delivered. Much to my surprise the pains continued, and after caring for the second child I examined again, and found another vertex engaged and also in its own sac. This I could not rupture in the usual manner with my finger, but had to use a pair of blunt scissors. In fifteen or twenty minutes a second female babe was safely delivered. I thought that surely this was enough, but the pains continued constant and strong. Thinking it must be the placenta, I cared for the third babe before examining. When I was ready I discovered a second breech presentation, this also in its own sac. This sac I had to rupture with the scissors on account of the toughness of the membrane. In about twenty minutes the second male or fourth child was delivered, but apparently dead and bloodless. However, after working over it for about ten minutes, respiration and circulation were well established. I delivered the placenta in fifteen or twenty minutes after the birth of the last child; it was in one piece and very large, though the union of four placentæ could be distinctly seen, with their four cords attached. The babes weighed, in the afternoon of the same day, 21½ pounds in all. The girls 5¼ pounds each, the boys 5½ pounds each. The mother and children are all well and progressing finely at the present writing; the babes being nursed on the mixed plan.

The parents are Scotch, having come to this country three years ago. They had five children previous to the late addition; all are very healthy and came single. The lady is 35 or 36 years of age, medium size, and has been robust.

Yours truly,

M. ARTHUR, M. D.

Waverly, Dakota, July 19, 1885.

### RENAL CALCULI.

*Dear Sir*:—In the issue of the JOURNAL of June 27th there is reported a case of "Renal Calculi," which caused inflammation of the kidney, involving the neighboring structure and leading to a fatal ter-

mination. This case, though somewhat unique, resembles in some respects a case that occurred some time since in my practice.

At the autopsy of the body of Mr. S. the left kidney was contracted and completely disorganized, being merely a sac containing a large irregular calculus with debris. The weight of the calculus was about 200 grains. The right kidney was contracted and granular. The capsule of the left kidney had ruptured on the anterior aspect, where there were several cysts. There was no disease of the liver, gall-bladder, heart, nor other organs. The body of the patient was well nourished and contained a great amount of fat. The cause of death was severe shock.

When I was called at 1 P.M., June 27, 1883, the patient, though suffering great pain, was in a collapsed condition. Under the influence of a gr. ¼ of sulphate of morphia, administered hypodermically, the patient soon became easy and fell asleep. The pulse improved and warmth to the hands and feet soon returned; but as the morphia wore off towards morning, the patient again became collapsed, though not so severely as at first. Hypodermic injections of whiskey and enemata of beef-tea and strong coffee were administered, but the patient only partially rallied and sank again and died at 4 P.M., on the 29th.

The patient had been for years troubled with rheumatoid disease, the hands, feet and knees being often greatly swollen. The frequent attacks of pain were always very severe, and could only be relieved by subcutaneous injections of morphia. Although seen by many eminent physicians, the diagnosis was uncertain. Gall-stones as the cause of these attacks had been more than once suggested, but none could ever be found in the fæces. He was often affected with jaundice. No renal calculi at any time were found in the urine. The pain was more frequently complained of as being located in the centre of the abdomen and about the region of the pylorus and to the left of the umbilicus. The calculus was composed of oxalate and phosphate of lime, similar to those referred to above. The length of the painful attacks was often different; sometimes lasting only a few days and at other times for weeks, and then the patient would rally and resume his official duties as constable and collector. Careful and repeated examination of the urine gave only negative results. The patient for several years had been under my care. The autopsy was conducted by Dr. A. F. Holt, one of the State Medical Examiners.

Very respectfully,

AUGUSTUS P. CLARKE, M.D.

Cambridge, Mass., July 8, 1885.

### A LOST INSTRUMENT.

*Dear Sir*:—I forwarded a sample instrument and description of same, a "new combined trocar and aspirating needle," to the Chairman of the Section on Surgery for presentation at the meeting held at New Orleans, 1885. The instrument was presented (the Chairman informs me), but never returned to him. I trust that you will publish this card, so that the individual in whose possession the instrument now is, may know where it of right belongs. I trust the present possessor will forward the instrument to me so that I may use the same as a sample by which the manufacturer may produce another; if they will oblige me this much I promise them a return of the instrument, which I had constructed at an expense of about eight dollars.

H. LANDIS GETZ, M. D.

Marshalltown, Iowa.

## ASSOCIATION ITEMS.

### MEMBERSHIP BY APPLICATION.

At the meeting of the American Medical Association held at Washington, in May, 1884, an amendment to Regulation II was adopted, which provides that membership in the Association shall be obtainable by any member of a State or County Medical Society recognized by the Association, upon application endorsed by the President and Secretary of said Society; and shall be retained so long as he shall remain in good standing in his local Society, and shall pay his annual dues to the Association. Hitherto attendance as a delegate at an annual meeting has been necessary in order to obtain such membership.

Application for membership, accompanied with FIVE DOLLARS, for annual dues, and the Certificate of Membership in the local Society, should be sent directly to the undersigned, on receipt of which the weekly JOURNAL OF THE ASSOCIATION will be forwarded for one year.

RICHARD J. DUNGLISON, M.D., *Treasurer*.

Lock Box 1274, Philadelphia, Pa.

## MISCELLANEOUS.

NOMENCLATURE OF DISEASES.—The new edition of the "Nomenclature of Diseases" has been recently issued and distributed to the profession in Great Britain.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 25, 1885, TO JULY 31, 1885.

Major Jos. H. Bill, Surgeon U. S. A., died at Yonkers, N. Y., July 21, 1885.

Lieutenant-Colonel Charles McDougall, U. S. A. (retired) died at Fairfield, Va., July 25, 1885.

Captain Calvin DeWitt, Assistant Surgeon, promoted to Major and Surgeon, vice Bill, deceased, to take effect July 21, 1885.

Francis J. Ives, appointed Assistant Surgeon with rank of First Lieutenant, to rank as such from July 25, 1885.

Captain A. C. Girard, Assistant Surgeon, from Dept. East to Dept. Columbia.

Captain R. G. Ebert, Assistant Surgeon, from Dept. Columbia to Dept. East. (S. O. 170, A. G. O., July 27, 1885.)

Captain A. H. Appel, Assistant Surgeon, ordered for duty with U. S. troops forming portion of guard of honor over remains of ex-President, General Grant, at Mt. McGregor, N. Y. (S. O. 36, Div. Atlantic, July 29, 1885.)

Captain Wm. C. Gorgas, Assistant Surgeon, granted leave of absence for two months, to take effect about August 10, 1885. (S. O. 169, A. G. O., July 25, 1885.)